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1998 Health Care Survey of DoD Beneficiaries:

Technical Manual

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Chapter
1

Introduction

The 1998 Health Care Survey of Department of Defense Beneficiaries (HCSDB) is the primary tool with which the TRICARE Management Activity (TMA) of the Assistant Secretary of Defense (Health Affairs) monitors the opinions and experiences of military health system (MHS) beneficiaries. The survey has been conducted annually since 1995. Specifically, the HCSDB is designed to answer the following questions:

- How *satisfied* are DoD beneficiaries with their health care and their health plan?
- How does overall satisfaction with military treatment facilities (MTFs) compare with satisfaction with civilian treatment facilities (CTFs)?
- Does *access* to military and civilian facilities meet TRICARE standards?
- Do beneficiaries understand TRICARE?
- Is beneficiaries' use of preventive health care services in line with national goals, such as those outlined in *Healthy People 2000*?
- What is the general physical and mental health status of MHS beneficiaries?
- Has beneficiaries' use of MHS services changed over time?
- What aspects of MHS care contribute most to beneficiary satisfaction with their health care experiences? With which aspects are beneficiaries least satisfied?
- What are the demographic characteristics of MHS beneficiaries?

The HCSDB is a mail survey of a representative sample of MHS beneficiaries. It is sponsored by the office of the TRICARE Management Activity of the Assistant Secretary of Defense (Health Affairs) [OASD(HA)] under authority of the National Defense Authorization Act for Fiscal Year 1993 (P.L. 102-484). The DoD Defense Manpower Data Center (DMDC) prepared the sampling frame, which consists of selected variables for each MHS beneficiary in the Defense Enrollment Eligibility Reporting System (DEERS) database in July 1998. DEERS includes everyone who is eligible for a MHS benefit (i.e., everyone in the Uniformed Services--Army, Air Force, Navy, Marine Corps, Coast Guard, the Commissioned Corps of the Public Health Service, National Oceanic and Atmospheric Administration, Guard/Reserve personnel who are activated for more than 30 days -- and other special categories of people who qualify for benefits). DEERS includes those on active duty, those retired from military careers, immediate family members of people in the previous two categories, and surviving family members of people in these categories.

Mathematica Policy Research, Inc. (MPR, Washington, D.C.) prepared the sample of 206,007 adult beneficiaries under subcontract to United Healthcare (Minneapolis) (Jang et al. 1998). Also under subcontract to United Healthcare, Data Recognition Corporation (DRC, Minneapolis) fielded the survey between the autumn of 1998 and spring of 1999. MPR analyzed the survey data, reported on the results, and prepared this document, the "1998 HCSDB Survey of Adult Beneficiaries Technical Manual", again under subcontract to United Healthcare.

This manual is designed to be used as a reference by analysts in OASD(HA) as they interpret the survey findings and prepare briefings. The manual provides detailed documentation on the following: naming conventions for variables, editing procedures, selection of records, computation of response rates, recoding of variables, computation of weights, variance estimation, and construction of tables and charts for the reports. The manual enables an analyst to link each cell in each table (or chart) in the reports to the associated question in the Form A questionnaire and/or to the variable in the survey database. The manual also enables an analyst to follow, and replicate if desired, the processing of the raw survey data through each step in the production of the final database. This document was prepared under Delivery Order 0016, under Prime Contract No. DASW01-95-D-0029.

A. OVERVIEW OF THE HCSDB

This section presents an overview of the methodology used in the survey. A sample of 70,504 adult MHS beneficiaries completed and returned a 1998 HCSDB questionnaire from November 1998 through June 11, 1999.

1. Sample Design

The 1998 sample design is based on three sample stratifications--enrollment type, beneficiary type, and geographic area. Enrollment type is defined by enrollment in TRICARE Prime with a military primary care manager (PCM), a civilian PCM, or not enrolled. The effect of this stratification is to allocate a greater proportion of the HCSDB sample to those enrolled in Prime and a smaller proportion to those not enrolled in Prime compared with the 1997 survey. This shift in the allocation of the sample was prompted by TMA's increased policy interest in Prime enrollees.

Beneficiary type is defined as active duty, active duty family members, retirees and their family members under age 65, and retirees and their family members age 65 and over. Compared with previous surveys, this stratification causes a larger proportion of the sample to be allocated to active duty personnel and their family members, and a smaller proportion of the sample to be allocated to retirees. The exception to this general rule is that retirees in the seven Medicare Subvention Demonstration sites are oversampled in the 1998 survey to provide data for the evaluation of the demonstration by TMA and the Health Care Financing Administration (HCFA).

The geographic stratification depends on enrollment type. Those enrolled in Prime who have a military PCM typically receive much of their health care from a military treatment facility (MTF), that is a military hospital or clinic. The geographic stratification for such beneficiaries is determined by the MTF that bears the financial responsibility for the beneficiary's health care. This stratification does not depend on the location of the beneficiary's residence, although most such beneficiaries live within the catchment area of the responsible MTF.

Those enrolled in Prime with a civilian PCM typically receive much of their health care from a TRICARE contractor. The geographic stratification for these beneficiaries is the catchment area in which they live.

Those not enrolled in Prime typically receive much of their care through TRICARE Extra/Standard (CHAMPUS) or through a non-MHS health plan. The service area they live in determines the geographic stratification. Conceptually, the service area is the health care market area in which the beneficiary resides. Operationally, the service area is the group of catchment areas in the metropolitan area the beneficiary lives in. For beneficiaries who do not live in a metropolitan area, the service area is the same as the catchment area they live in. The most important effect of these differences from earlier surveys is to reallocate the sample, relative to the 1997 HCSDB, to beneficiaries enrolled in Prime and away from beneficiaries not enrolled in Prime.

Relative to previous surveys, more military clinics, as opposed to military hospitals, were included in the list of geographic areas. This means that a larger proportion of the 1998 sample is allocated to beneficiaries who receive much of their health care from a military clinic, and a smaller proportion is allocated to those receiving much of their care from a military hospital.

A final key characteristic of the 1998 sample design is the oversampling of beneficiaries over the age of 65 in the seven sites of the Medicare Subvention Demonstration. The demonstration, sponsored jointly by TMA and the HCFA, is designed to field test a program in which military retirees age 65 and over are enrolled in TRICARE Prime rather than in the Medicare trust fund. The demonstration is now being initiated in 10 MTFs in seven geographic areas in the continental United States.

2. 1998 Questionnaire

The HCSDB questionnaire was substantially revised for the 1998 survey. The 1998 questionnaire is reproduced in Appendix A. The major changes were:

- Questions on beneficiary satisfaction and access to care were revised to be similar to those in the Consumer Assessment of Health Plans Survey (CAHPS).[1]
- TMA included several key questions on beneficiary satisfaction from the 1997 questionnaire in order to compare the traditional HCSDB satisfaction scales with the new scales based on CAHPS questions. This means that the respondent is asked about satisfaction with health care twice, once through the new CAHPS questions and once through the traditional questions.
- The entity being evaluated (health care in general, the health plan, or the specific facility providing health care) was clarified throughout the questionnaire.

The adult questionnaire includes the following topics:

- Use of health care
- Use of preventive health care
- Understanding of TRICARE
- Type of health plan covering the beneficiary
- Satisfaction with health plan
- Satisfaction with health care
- Access to health care
- Beneficiaries' health status
- Demographic characteristics

3. Survey Response

The survey was fielded by mail. Out of 206,007 adults sampled, DRC mailed 204,685 questionnaires in Wave 1: mailings to beneficiaries over age 65 occurred in November and December 1998; mailings to all other beneficiaries occurred in January and February 1999. Wave 1 remailings and Wave 2 mailings and remailings had the same schedule for all beneficiaries. The final mailing took place on April 27, 1999. Of these questionnaires, 70,504 were completed and returned by June 11, 1999, for a response rate of 35 percent.

[1]The CAHPS questionnaires were being developed by the Agency for Health Care Policy and Research (AHCPR), Harvard University, RAND Corporation, and Research Triangle Institute. The goals of CAHPS are (1) to develop and test questionnaires that assess health plans and services, (2) produce easily understood reports for communicating survey information to consumers, and (3) evaluate the usefulness of these reports for consumers in selecting health care plans and services.

4. Database Development

MPR edited the data, selected records for inclusion in the final database, and constructed variables to be used in reports. To ensure that the survey data was representative of the DEERS population, MPR developed weights to take account of the initial sampling and the sampled individuals who chose not to respond to the survey.

5. Reports

MPR analyzed the data and produced several reports explaining the findings on topics such as satisfaction, access to care, health care use, and use of preventive services. These reports will be available on the TRICARE website at http://www.TRICARE.USD.mil:

- National Executive Summary Report
- Regional Reports (Reports for Regions 1, 2, 3, 4, 5, 6, 7/8, 9, 10, 11, 12 (Hawaii), Alaska, Europe, Western Pacific (Asia), and Latin America)
- Catchment Reports (Reports for Regions 1, 2, 3, 4, 5, 6, 7/8, 9, 10, 11, 12 (Hawaii), Alaska, Europe, Western Pacific (Asia), and Latin America)
- Medicare Subvention Demonstration Report

B. ORGANIZATION OF THIS MANUAL

Chapter 2 presents the procedures used in fielding the survey. Chapter 3 explains how the database was developed. It covers naming conventions, editing procedures, record selection criteria, descriptions of all variable types, definitions of each constructed variable, the development of satisfaction and health status scales, and weighting procedures. Chapter 4 describes how the database was analyzed. This includes rules for developing response rates, the development of table and chart specifications for each report, an explanation of the dependent variables and independent variables, an explanation of the performance improvement guide, and the methodology for estimating the variance of estimates. The manual concludes with a series of technical appendices:

- Appendix A: Annotated questionnaire – survey questionnaire annotated with database variable names
- Appendix B: Letters sent to the respondents during the fielding of the survey
- Appendix C: Data processing architecture
- Appendix D: Plan for Data Quality – Coding Scheme (database variable recode list)
- Appendix E: Charts in the National Executive Summary Report
- Appendix F: Charts in the Regional Reports
- Appendix G: Charts and tables in the Catchment Reports
- Appendix H: Charts in the Medicare Subvention Demonstration Report
- Appendix I: A table mapping MTFs to the catchment area and region. The table also indicates the type of facility, such as teaching hospital or clinic, and the service affiliation of the MTF.
- Appendix J: Response rate tables for selected domains
- Appendix K: SAS code

- Appendix L: The SUDAAN code for calculating variance of estimates
- Appendix M: Visual Basic code for table production

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Chapter 2

Survey of Adults

This chapter presents information on the survey administration cycle for the 1998 Health Care Survey of DoD Beneficiaries (HCSDB), with specific details on the survey mailing cycle and the number of surveys received.

A. SURVEY OPERATIONS ACTIVITIES

The operational support for mailing the survey involved four mailings to beneficiaries between October 26, 1998 and April 27, 1999. The mailings were scheduled during these timeframes in an effort to maximize response rates for survey returns and data collection. Targeted mailings and remailings have been integrated into the mailing administration in order to increase response rates. As is represented in Table 2.4, the mailings for the 1998 administration were split into a dual process, subsetting two specific samples: an over-65-years sample and an under-65-years sample (remainder sample) until the start of the Wave 1 remail. The first mailing was timed to coincide with the beginning of enrollment in the Medicare Subvention Demonstration. Both mailing subsets consisted of four main mailings and up to six remailings. The main mailings were the following: notification mailing, first wave of surveys mailing, reminder/thank you mailing (for the under-65 years sample only), and second wave of surveys mailing. These two subsamples were merged into one at the point of the Wave 1 remail and remained merged for the remainder of the administration. The close of field date was June 11, 1999.

B. ADDRESS UPDATE ACTIVITIES PRIOR TO AND DURING SURVEY ADMINISTRATION

Upon receipt of the two sample files from Defense Manpower Data Center (DMDC) on September 18, 1998 for the over-65-years sample and October 27, 1998 for the remainder sample, the addresses were examined to determine whether an address was suitable for mailing. Within each record, a priority was assigned to each address based on its source and type, e.g., Defense Enrollment Eligibility Reporting System (DEERS) residence address, DEERS unit address. Data Recognition Corporation (DRC) sent all sample records (excluding foreign countries) with sufficient address information to an outside vendor where they were interfaced with the National Change of Address (NCOA) database to obtain updated address information. Addresses outside the United States were not submitted, as they were not included in the NCOA database. A total of 201,928 records were sent to the NCOA prior to the first notification letter mailing. Of that total, 11,515 represented records from the over-65-years sample, and 190,413 represented records from the remainder sample. NCOA returned the updated address file to DRC, and the file was integrated with the DMDC-provided data in the system used for mailing. In the notification letter mailing, the NCOA-provided address was labeled as the highest priority address in the system file and was the first address attempted. The highest priority address for each record was selected; and, for all mailings and remailings (excluding mailings with fewer than 500 pieces), address records were sorted according to first class presort postal regulations using Group 1 software[1]. Lastly, a print file[2] was created, which was used to produce personalized cover letters.

[1]The Postal Service requires a minimum of 500 pieces for presorted mail.

[2] The print file was the file of names and addresses to be printed on the cover letters

The updating of addresses was a continuous process throughout the survey administration cycle. During survey administration, address updates were obtained in multiple ways:

- Beneficiaries self-reported information via telephone (using the 800-number system designated for calls regarding this survey), fax, or letter.
- Postal service forwarded address correction information (ACRs).
- Postal service returned letters or packets with out-of-date forwarding (ODFs) but with new address information affixed to the envelopes.
- Letters or packets were returned as postal non-deliverables (PNDs).

To obtain new address information for PNDs (if no other usable addresses were available), the records were submitted first to one commercial credit bureau, Experian. Records for which Experian was unable to provide updated addresses were then sent to CSC Credit Services and Trans Union simultaneously.

Address information received directly from a beneficiary was considered the most accurate and received the highest address priority. The notification and reminder letters included a toll-free telephone number and numbers for faxes and collect calls (for non-U.S. beneficiaries), so that beneficiaries would be aware of an easy and free method of updating their own addresses as necessary. Next highest priority was address information received from the post office in response to the "Address Service Requested" legend printed on the carrier envelopes. This consisted of a photocopy of the forwarded envelope with the change of address information noted. This information was from the post office's database of address correction cards filed by people who had moved. This year, a new method, electronic address correction service (ACS), was also used.

When a letter or survey was returned PND, the associated record was labeled to reflect that it was returned PND and that the address was invalid and therefore unusable. The record was then flagged for inclusion in the next remail. The next-in-line address was identified for use in the next mailing. Each address within a given record was used based on its assigned priority. Once all addresses had been used, the record was flagged for inclusion in the next submission to the credit bureaus, prior to the next remail. Submission to the credit bureau was a last-chance attempt to obtain updated address information.

Based on data from the final returns data set, a total of 7,119 beneficiaries had insufficient address information in the address fields (for all available addresses). Of this total, 270 were from the over-65-years sample, and 6,849 were from the remainder sample (under 65 years). Any record without a usable address was sent to the credit bureau for an address search. The credit bureau returned all records to the operations contractor with updated address information, if available. Where multiple addresses were received, only the highest priority one was loaded into the system. (Credit bureau updates included the receipt date of new address information as part of the record returned to DRC, which allowed DRC to select the address with the most recent date.) The updates were added to the mailing file and were labeled as the highest priority addresses. The letters or surveys to these beneficiaries were then mailed, following the same steps as the original mailing. In accordance with the contract requirements, records for which the address was identified as PND and without a usable address were submitted to the credit bureau prior to each mailing and remailing. Any PNDs received after the cut-off date were processed in the next batch and sent to the credit bureau.

The order in which addresses were prioritized in the mailing system are shown here from highest to lowest:

1. Contact from beneficiary (phone call, voice mail, fax, letter, returned survey)
2. Update from post office (ACRs, ODFs)

3. Update from NCOA
4. Update from commercial credit bureaus
5. DEERS residence address
6. DEERS unit address

Table 2.1 summarizes the address sources by each of the four beneficiary categories. This table shows the source of the last address used for a sample member. Note that the largest number of invalid addresses was in the Active Duty category. This may be due to the fact that this group is very mobile. Nevertheless, the majority of valid addresses still came from the DEERS database.

TABLE 2.1

- FREQUENCY OF ADDRESS SOURCES BY BENEFICIARY CATEGORY
- (N=206,007)

	Active Duty Personnel	Active Duty Family Member Under Age 65	Retirees and their Families Under Age 65	Non-Active Duty Age 65 or Over	Total
No Valid Address	5,444 2.6%	808 0.4%	597 0.3%	270 0.1%	7,119 3.5%
Live Phone Call	4 0.0%	2 0.0%	0 0.0%	0 0.0%	6 0.0%
ACR from PO	61 0.0%	11 0.0%	5 0.0%	1 0.0%	78 0.0%
Fax	0 0.0%	0 0.0%	1 0.0%	0 0.0%	1 0.0%
Letter Return	0 0.0%	0 0.0%	1 0.0%	2 0.0%	3 0.0%
NCOA (moved address)	0 0.0%	0 0.0%	2 0.0%	476 0.2%	478 0.2%
DEERS Unit	24,371 11.8%	2,604 1.3%	191 0.1%	21 0.0%	27,187 13.2%
DEERS Resident	75,554 36.7%	38,989 18.9%	33,575 16.3%	10,783 5.2%	158,901 77.1%
ODF	72 0.0%	23 0.0%	41 0.0%	5 0.0%	141 0.1%
Credit Experian	9,370 4.6%	1,030 0.5%	992 0.5%	134 0.1%	11,526 5.6%
Credit TU	94 0.0%	6 0.0%	10 0.0%	156 0.1%	266 0.1
Credit CSC	127 0.1%	9 0.0%	7 0.0%	8 0.0%	151 0.1%
Electronic ACR	115 0.1%	18 0.0%	14 0.0%	3 0.0%	150 0.1%
Total	115,212 56.0%	43,500 21.1%	35,436 17.2%	11,859 5.8%	206,007 100%

Table 2.2 summarizes the address sources for returned surveys included in the 1998 HCSDB (Form A) data file. At this time, the table shows that about 14,044 (19.2%) of the final data set consists of surveys from updated sources such as the 800-number system, NCOA, and commercial credit bureaus.

TABLE 2.2

FREQUENCY OF ADDRESS SOURCES FOR RETURNED SURVEYS
(N=72,957)

Address Type	**Frequency (n)**	**Percent of Returns**
DEERS residence	53,245	73.0%
DEERS unit address	5,668	7.8%
800-number information	1,674	2.3%
Fax or mail	200	0.2%
NCOA database	6,766	9.3%
Commercial Credit Bureau (Experian)	2,267	3.1%
Commercial Credit Bureau (Trans Union)	89	0.1%
Commercial Credit Bureau (CSC)	16	0.0%
US Postal Service (ACRs and ODFs)	569	0.7%
Electronic ACR	2,463	3.4%
Total	72,957	

Note: If beneficiaries returned more than one completed survey, both or all surveys were included in the numbers in Table 2.2.

Additionally, the costs associated with each of these address sources (e.g., the costs associated with doing address traces through the credit bureaus) is summarized in Table 2.3 below. Note that these are costs associated with DRC's portion of the survey administration activities and do not include any cost incurred by TRICARE Management Activity (TMA) or the Analysis Contractor in providing address information to DRC. These costs include both vendor costs (to DRC) as well as DRC's personnel expense.

TABLE 2.3

COST TABLE BY ADDRESS TYPE

Address	Unit Cost	Aggregate Cost/Total Sample	Aggregate Cost/Returned Sample
DEERS residence	NSP*		
DEERS unit address	NSP*		
800-number information	$0.62	$1,894.72	$1,117.24
Fax or mail	$0.64	$284.80	$139.52
NCOA database	$7.92/M	$1,782.91	$49.02
Commercial Credit Bureau (Experian)	$1.22	$19,402.88	$2,992.66
Commercial Credit Bureau (Trans Union)	$5.20	$1,830.40	$509.60
Commercial Credit Bureau (CSC)	$5.20	$1,097.20	$109.20
US Postal Service (ACRs and ODFs)	$0.64	$2,053.12	$445.44
Electronic ACR	$0.20	$2,728.80	$556.80

*Not separately priced. Provided to contractor by Government.
**These are line charges only. Personnel costs are separately priced.

C. LETTER PROCESSING PROCEDURES

Mailings that did not include a survey were generated and printed with the "best available" address from the system used for mailing. This address may have been the address generated from the DEERS file, NCOA, commercial sources (Experian, Trans Union, or CSC), through contact with the beneficiary (telephone, letter or fax) or from the postal service (address corrections). Each letter was printed with a unique identifier in the address block and the lower right corner, so that the beneficiary could refer to the number if address corrections were requested by fax or phone. Letters and packets with surveys were sent via first class mail.

The procedure for mailing surveys was more complex. Prior to the production of letters, each record in the mailing was matched with an available survey identification number (survey ID). As each survey ID was assigned, it was also recorded in the system used for mailing. Cover letters printed with each beneficiary's assigned survey ID were generated and printed in survey ID order. The letters were paired with the matching survey lithocode,[3] inserted into envelopes with postage-paid return envelopes enclosed, and sent via first class mail. A 10 percent quality control check was implemented to ensure that the surveys and letters contained the same survey ID. If an error was found, the packets were opened, examined, and the correct survey ID lithocode combination was made.

[3]Lithocodes are the survey identification numbers printed on the survey questionnaires in a binary format, so that they can be read by the OMR scanner and converted into Arabic numbers for the data file.

D. SURVEY ADMINISTRATION TIMELINE

The HCSDB mailing process was designed so that each beneficiary with a usable address was sent up to four documents: a notification letter, a first wave survey, a reminder/thank-you letter (under 65 only), and a second wave survey. If a beneficiary returned a survey during the first wave mailing, then a second wave survey was not sent. If a beneficiary was identified as deceased, that record was updated and no longer included in the mailing process. Also, beginning with Wave 2, active refusers (those who make a verbal or written request not to participate) and beneficiaries who were permanently incapacitated, incarcerated, or ineligible for Military Health System benefits on July 1, 1998, were also excluded. In the mailing process described below and in Table 2.4, the dates cited include both the dates in which records for the mailings were selected and a print file was created and the dates the mailings began. The packets were usually mailed from one to five days after the print file was created.

The print file for the notification letter to the over-65-years sample was created on October 21, 1998, and consisted of 11,852 letters. The print file for the notification letter to the remainder sample was created on November 18, 1998, and consisted of 194,090 letters. Both files contained letters that would be sent to all beneficiaries except those who had no known address. Those records were subsequently sent to credit bureaus. The notification letters were sent to notify the beneficiaries that they were selected for the survey and to provide information to the beneficiaries regarding address-updating procedures if the letters had been forwarded or had incorrect addresses.

There were two remailings of the notification letter to the over-65-years sample and three remailings of the notification letter to the remainder sample. The criteria for these mailings were beneficiaries where the notification letters returned as postal non-deliverables or those without a known address where an address resulted from the credit bureau search. These remailings for both subsamples started on November 5, 1998, and were completed on January 12, 1999 and totaled 20,578 pieces. Of this total, 286 were sent to the over-65-years sample, and 20,292 were sent to the remainder sample. (A sample of the presurvey notification letter is found in Appendix B.)

The first wave survey mailings, for which the print files were created on November 25, 1998, for the over-65-years sample, and January 20, 1999 for the remainder sample, consisted of 204,685 total surveys sent to all beneficiaries except those who had not yet been mailed the notification letter. Of that total, 11,613 were sent to the over-65-years sample, and 193,072 were sent to the remainder sample. For Wave 1, each beneficiary received a survey, a cover letter requesting that the beneficiary complete and return the survey, and a return envelope. Two remailings totaling 14,995 were targeted to beneficiaries whose surveys were returned as postal non-deliverable. These remailings took place on March 8 1999, and March 9, 1999. (A sample of the Wave 1 cover letter is in Appendix B.)

The reminder/thank-you letter mailing (for which the print file was created on February 4, 1999), consisted of 192,706 letters sent to beneficiaries in the under-65 sample, with the exception of those who had been updated as deceased, ineligible, etc. (This mailing wasn't sent to the beneficiaries in the over-65 sample as the amount of time that lapsed between mailing of the Wave 1 survey and the reminder letter mailing made it impractical). The reminder/thank-you letter was sent to thank the beneficiary for completing the survey and encourage the beneficiary to return the survey if one had not been completed. The reminder/thank-you letter also contained address-updating procedures if the letter had been forwarded or had an incorrect address. There were no remailings planned or conducted for the reminder/thank-you letter. (A sample of the reminder/thank-you letter can be found in Appendix B.)

The Wave 2 mailing was sent out beginning March 30, 1999, to 151,936 beneficiaries. One remail was also sent to 4,523 beneficiaries beginning on April 28, 1999.

Table 2.4 summarizes the various HCSDB mailings as recorded in the system used for the mailings. The data includes the type of mailing, the date the records were selected for inclusion in the mailing, the date the mailings were dropped at the post office, and the quantities sent. The

table also shows the separate schedules for the two subsamples and the point at which the samples were merged together into the same mailing schedule.

TABLE 2.4

MAILING TIMELINE

Mailing Type	Date of Selection		Date(s) Mailed		Number Sent	
	Over 65 years	Under 65 years	Over 65 years	Under 65 years	Over 65 years	Under 65 years
Notification Letter	10/21/98	11/18/98	10/26/98	11/25/98-12/7/98	11,852*	194,090*
Notification Remail #1	11/5/98	12/10/98	11/5/98	12/14/98-12/16/98	75	2,500
Notification Remail #2	11/13/98	12/18/98	11/17/98	12/21/98	211	3,490
Notification Remail #3	NA	1/06/99	NA	1/8/99-1/12/99	NA	14,302
Wave 1	11/25/98	1/20/99	11/25/98-12/8/98	1/27/99-2/4/99	11,613	193,072*
From this point forward, the "over 65 years" Sample and "Under 65" sample were combined into the same mailing schedule.						
Mailing Type	Date of Selection		Date(s) Mailed		Number Sent	
Wave 1 Remail #1**	2/25/99		3/8/99		13,143	
Wave 1 Remail #2	3/03/99		3/9/99		1,852	
Reminder/Thank You	2/04/99		2/11/99-2/22/99		192,706* (<65 years only)	
Wave 2 Survey	3/29-4/1/99		3/30-4/10/99		151,926*	
Wave 2 Remail #1	4/27/99		4/28/99		4,523	

* Includes foreign and domestic addresses in sample.

E. PROCESSING AND CLASSIFICATION OF INCOMING SURVEYS

Incoming survey forms were visually checked prior to scanning. Blank forms were divided into batches according to the reason (if any) the beneficiary wrote on the returned form. A respondent's reason for returning a blank or partially completed form was recorded in the mailing system. Surveys were then optically scanned so that lithocodes could be captured and tracked. This tracking of survey IDs was used to identify whether a beneficiary had returned a survey or not and to record the reason given for a blank return. This year, all returned surveys contain a bar code to enable up-to-the-minute electronic tracking of all returned surveys. The bar code provides an electronic receipt of all returned surveys and tracks their status in the receiving and scanning process.

Blank forms without an explanation for their return were tracked by survey IDs. Counts of all incoming forms were updated as forms were received. All these documents were optically

scanned and edited. Surveys that were damaged or completed in ink were key-entered.[4] Scanned survey questions with multiple answers were checked to ensure that the multiple answers were not due to a scanning error (i.e., the scanner erroneously picked up an erased answer as a response).

Throughout the administration of HCSDB, returned surveys were tracked in the mailing system and returns files as surveys were returned, mail was returned PND, and information was received by fax or telephone. A final disposition variable (FLAG_FIN) was developed to classify incoming surveys and to classify cases where the beneficiary did not return a survey. The disposition values and outcomes were:

- FLAG_FIN=1

  Returned survey – survey was completed and returned.

- FLAG_FIN=2

  Returned ineligible – survey was returned with at least one question marked and information that the beneficiary was ineligible. The information indicating ineligibility may come by phone, fax or the survey itself.

- FLAG_FIN=3

  Returned blank – temporarily ill or incapacitated. Survey was returned blank along with information that the beneficiary was temporarily ill or incapacitated. This corresponds to blank reason 4. These sample members were eligible.

- FLAG_FIN=4

  Returned blank – deceased. Survey was returned blank along with information that the beneficiary is deceased. This corresponds to blank reason 7. These sample members were ineligible.

- FLAG_FIN=5

  Returned blank – incarcerated or permanently incapacitated. Survey was returned blank along with information that the beneficiary was incarcerated or permanently hospitalized. This corresponds to blank reasons 1 and 5. These sample members were ineligible.

- FLAG_FIN=6

  Returned blank – left military or divorced after 7/1/98, retired. Survey was returned blank along with information that the beneficiary left the military after 7/1/98, divorced after 7/1/98, or retired. This corresponds to blank reason 6. These sample members were eligible.

- FLAG_FIN=7

  Returned blank – not eligible on 7/1/98. Survey was returned blank along with information that the beneficiary was not eligible for Military Health System Plan on 7/1/98. This corresponds to blank reason 3. These sample members were ineligible.

- FLAG_FIN=8

  Returned blank – other eligible. Survey was returned blank along with a reason given by the sample member. This corresponds to blank reasons 2, 8, 9, 13, 14, 15, 16, 17, and 18. These sample members were eligible.

[4] All data captured via keying was keyed and verified, yielding an accuracy rate of 99.6%.

- FLAG_FIN=9

  Returned blank – no reason. Survey was returned blank without an explanation. This corresponds to blank reason 10. These sample members were eligible.

- FLAG_FIN=10

  No return – temporarily ill or incapacitated. Survey was not returned, beneficiary was temporarily ill or incapacitated. This corresponds to phone code 11. These sample members were eligible.

- FLAG_FIN=11

  No return – active refuser. Survey was not returned, beneficiary refused to take part in the survey. This corresponds to phone code 16, 20, 21, 23, 25, and 26. These sample members were eligible.

- FLAG_FIN=12

  No return – deceased. Survey was not returned, beneficiary deceased. This corresponds to phone code 5. These sample members were ineligible.

- FLAG_FIN=13

  No return – incarcerated or permanently incapacitated. Survey was not returned, beneficiary was incarcerated or permanently hospitalized. This corresponds to phone codes 6 and 7. These sample members were ineligible.

- FLAG_FIN=14

  No return – left military or divorced after 7/1/98, retired. Survey was not returned, beneficiary left service after 7/1/98, divorced after 7/1/98, or retired. This corresponds to phone codes 9 and 10. These sample members were eligible.

- FLAG_FIN=15

  No return – not eligible on 7/1/98. Survey was not returned, beneficiary was not eligible for Military Health System Plan on 7/1/98. This corresponds to phone code 4. These sample members were ineligible.

- FLAG_FIN=16

  No return – other eligible. Survey was not returned, beneficiary gave other reason for not completing the survey. This corresponds to phone codes 12, 13, 14, 18, 19, 22, and 24. These sample members were eligible.

- FLAG_FIN=17

  No return – no reason. Survey was not returned, beneficiary gave no reason.

- FLAG_FIN=18

  PND – no address remaining. All addresses were attempted, mailing was returned PND.

- FLAG_FIN=19

  PND – address remaining at the close of field. At the close of field, the last address used was found invalid, next available was not attempted.

- FLAG_FIN=20

  Original Non-Locatable – no address at start of mailing. Substantially incomplete or blank address field before the survey was administered, no mailings attempted.

- FLAG_FIN=21

  Beneficiary provided written documentation declining to participate but doesn't specify a reason.

- FLAG_FIN=22

  Beneficiary indicated he or she was hospitalized but without providing any way to determine whether incapacity is temporary or permanent. Therefore, eligibility determination can not be made.

Table 2.5 documents the final disposition data of the survey sample by each beneficiary group as recorded in the system used for mailing. Some beneficiaries did not return a survey, and they provided a reason why the survey was not returned (i.e., FLAG_FIN values of 3-9). Beneficiaries provided this information through various sources, including collect and 800-number calls, faxes, and letters.

TABLE 2.5

FREQUENCY (N) AND PERCENT DISTRIBUTION OF FINAL DISPOSITIONOF SURVEY SAMPLE BY BENEFICIARY GROUP[1]

Final Survey Disposition[2]	Active Duty Personnel	Active Duty Family Members Under Age 65	Retirees and their Families Under Age 65	Non-Active Duty Age 65 or Over	Total
Returned non-blank survey	30,227 14.7%	14,961 7.3%	18,631 9.0%	6,871 3.3%	70,690 34.3%
Returned ineligible	658 0.3%	112 0.1%	171 0.1%	269 0.1%	1,210 0.6%
No return (temporarily ill, incapacitated)	1 0.0%	1 0.0%	3 0.0%	1 0.0%	6 0.00%
Blank (temporarily ill)	0 0.0%	0 0.0%	0 0.0%	1 0.1%	1 0.0%
Blank (deceased)	4 0.0%	2 0.0%	16 0.0%	105 0.1%	127 0.1%
Blank (permanently ill)	6 0.0%	3 0.0%	3 0.0%	21 0.0%	33 0.0%
Blank (left military)	25 0.0%	11 0.0%	3 0.0%	2 0.0%	41 0.0%
Blank (ineligible for MHS)	6 0.0%	10 0.0%	15 0.0%	7 0.0%	38 0.0%
Blank (other eligible)	77 0.0%	49 0.0%	68 0.0%	86 0.0%	280 0.1%
Blank (no reason)	71 0.0%	39 0.0%	67 0.0%	56 0.0%	147 0.1%
No return (active refuser)	65 0.1%	30 0.0%	46 0.0%	6 0.0%	147 0.1%
No return (deceased)	14 0.0%	4 0.0%	53 0.0%	144 0.1%	215 0.1%
No return (permanently ill)	2 0.0%	3 0.0%	7 0.0%	8 0.0%	20 0.0%
No return (left military)	87 0.0%	36 0.0%	11 0.0%	1 0.0%	135 0.1%
No return (ineligible MHS)	26 0.0%	26 0.0%	18 0.0%	11 0.0%	81 0.0%
No return (other eligible)	113 0.1%	40 0.0%	64 0.0%	41 0.0%	258 0.1%
No return (no reason)	77,437 37.8%	27,098 13.2%	15,634 7.6%	3,964 1.9%	124,633 60.5%
PND (no address remaining)	5,328 2.6%	788 0.4%	587 0.3%	254 0.1%	6,957 3.4%
PND (address left)	518 0.3%	274 0.1%	36 0.0%	3 0.0%	831 0.4%
Non-locatable (no address at start of mailing)	46 0.0%	11 0.0%	1 0.0%	7 0.0%	65 0.0%
Decline to participate	1 0.0%	2 0.0%	2 0.0%	1 0.0%	6 0.0%
Total	115,212 55.9%	43,500 21.1%	35,436 17.2%	11,859 5.8%	206,007 100.0%

[1] Taken from BGCSMPL.
[2] Taken from FLAG_FIN.

NOTE: The data in this table was provided by the analysis contractor, Mathematica Policy Research, after removing duplicate records.

The data in Table 2.6 presents the final disposition for all incoming surveys by another created variable: FLAG_DUP as recorded in the Returns File. Please note column percents may not total 100% due to rounding. FLAG_DUP was developed to identify beneficiaries who returned more than one survey. Each survey was examined to determine whether the survey was from the first wave mailing or the second wave mailing. The data in Table 2.6 presents the final disposition for all incoming surveys received June 11, 1999.

TABLE 2.6

SURVEY WAVE INDICATOR[1] BY FINAL DISPOSITION[2]

Survey Wave Indicator	Wave 1	Wave 2	Wave 1 (both Wave 1 and Wave 2 were returned)	Wave 2 (both Wave 1 and Wave 2 were returned)	Total
Returned non-blank survey	54,050 74.1%	16,396 22.5%	253 0.4%	227 0.3%	70,926 97.2%
Returned blank (deceased)	59 0.1%	67 0.1%	1 0.0%	1 0.0%	128 0.2%
Returned blank (temporary ill, hospitalized, etc.)	0 0.0%	1 0.0%	0 0.0%	0 0.0%	1 0.0%
Returned blank (other reasons-eligible)	91 0.1%	187 0.3%	4 0.0%	25 0.0%	307 0.4%
Returned blank (no reason)	110 0.2%	122 0.2%	6 0.0%	15 0.0%	253 0.4%
Returned (ineligible)	718 1.0%	469 0.6%	19 0.0%	15 0.0%	1,221 1.7%
Blank (permanently ill)	27 0.1%	5 0.0%	1 0.0%	1 0.0%	34 0.1%
Blank (left military)	2 0.0%	39 0.1%	0 0.0%	0 0.0%	41 0.1%
Blank (ineligible for MHS)	13 0.0%	23 0.0%	2 0.0%	1 0.0%	39 0.1%
Decline to participate	2 0.0%	4 0.0%	0 0.0%	1 0.0%	7 0.0%
Total	55,072% 75.5%	17,313 23.7%	286 0.4%	286 0.4	72,957 100.0%

[1] Taken from FLAG_DUP.
[2] Taken from FLAG_FIN.

NOTE: This table was generated with data obtained prior to removal of any duplicate records from the file.

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Chapter 3

Database

This chapter explains the process of developing the raw survey data into a final database free of inconsistencies and ready for analysis. We discuss the design of the database; cleaning, editing, and implementing the Coding Scheme; record selection; and constructing variables.

A. DATABASE DESIGN

The 1998 Form A HCSDB consists of variables from various sources. When DRC delivered the file to MPR after fielding the sample, the following types of variables were present:

- DEERS information on beneficiary group, SSN, sex, age, etc.
- Sampling variables used to place beneficiaries in appropriate strata
- Questionnaire responses
- DRC information from fielding the sample, such as scan date and flags developed during the fielding to assist us in determining eligibility

MPR added the following types of variables to the database:

- Updated DEERS variables from the time of data collection to be used for post-stratification
- Recoded questionnaire responses from implementation of the Coding Scheme
- Coding Scheme flags
- Constructed variables for analysis
- Weights

This year we structured the final database so that all variables from a particular source are grouped by position. Table 3.1 lists all variables in the database by source and briefly describes these sources. For specific information on variable location within the database, refer to the "1998 Health Care Survey of DoD Beneficiaries: Codebook and User's Guide."

1. Data Sources

a. DEERS

DMDC provided the sampling frame to MPR prior to the selection of the sample. DEERS information such as sex, date of birth, and service are retained in the database; this data is current as of the time of sample selection.

b. Sampling Variables

MPR developed variables during the sample selection procedure that were instrumental in placing beneficiaries in appropriate strata. Many of the variables are retained on the database.

c. Questionnaire Responses

These variables represent the original values for all responses to the questionnaire as scanned by DRC.

d. Survey Fielding Variables

In the process of fielding the survey, DRC created a number of variables that we retain in the database. Certain of these variables, information that came in by phone, for example, assist us in determining eligibility.

e. Recoded Questionnaire Responses

During implementation of the Coding Scheme (see Appendix D) many original questionnaire responses were recoded to signify questions that were skipped appropriately and questions that were answered but should have been skipped and to ensure that responses are consistent throughout the questionnaire. Any recoded responses are kept in the final database with an _R suffix given to the original variable name, so that these recoded variables can be easily identified.

f. Coding Scheme Flags

Each table of the Coding Scheme (see Appendix D) has a flag associated with it that indicates the pattern of original responses and any recodes that were done. For example, the table for Note 5 has a flag N5.

g. Updated DEERS data

In March 1999, DMDC provided MPR with updated DEERS information for the sample so that we would have current information on TRICARE enrollment and geographic location as of the time of data collection.

h. Constructed Variables

MPR constructed additional variables that were used in the tables and charts of the reports. Often these variables were regroupings of questionnaire responses or the creation of a binary variable to indicate whether or not a TRICARE standard was met. Complete information on each constructed variable is found in section 3.D.

i. Weights

MPR developed weights for each record in the final database. Weights are required for the following reasons:

- To compensate for variable probabilities of selection
- To adjust for differential response rates
- To improve the precision of survey-based estimates through post-stratification (for details, see Brick and Kalton, 1996 and references cited therein)

Weighting procedures are discussed in section 3.E.

TABLE 3.1

VARIABLES IN THE 1998 HCSDB (FORM A) DATA FILE

Name	Content/Topic
	SAMPLING VARIABLES
MPRID	Unique MPR identifier
BFGROUP	Beneficiary group (uncollapsed)
MPCSMPL	Sampling rank
SVCSMPL	Sampling service
AGESMPL	Sampling age
SEXSMPL	Sampling sex
CELL	DMIS code (uncollapsed)
STESMPL	Sampling geographic site
BGCSMPL	Sampling beneficiary group
STRATUM	Sampling stratum
AGE_N	Age at time of DEERS ext. file (9/1/98)
TOTSIZE	Stratum population size
NHFF	Stratum sample size
SAMRTE	Sampling rate
BWT98	Sampling base weight
ENLSMPL	Enrollment sampling group
	DEERS VARIABLES
PRVCDE	Provider code
ENR_DMIS	Enrolled DMIS
ELGCDE	Eligibility code
MSTATUS	Marital status
RACE	Race/Ethnicity
RECTYP	Record type
SEX	Sex
STATUS	Status
SVC	Service
GROUP	Group code
SSEX	Sex of sponsor
SAGE	Age of sponsor
UDMIS	Unit address – DMIS code

Name	Content/Topic
RADRDMIS	Residential address – DMIS code
DOB	Date of birth
	UPDATED DEERS AND SAMPLING VARIABLES
ELGCDEP	Eligibility code from DEERS file MAR-11-1999
BFGROUPP	Beneficiary Group from DEERS file MAR-11-1999
ENLSMPLP	Enrollment status created from DEERS file MAR-11-1999
CELLP	Sampling cell at time of data collection from DEERS file MAR-11-YYYY
CACSMPL	Catchment area from DEERS file MAR-11-1999
POSTCELL	Post-Strata
	QUESTIONNAIRE RESPONSES
H98ELGA	Is the addressee eligible to complete the survey?
H98ELGB	If not the addressee, are you eligible to complete the survey?
H98001	In the last year, did you receive any health care at a health care facility or from a health care professional?
H98002	In the last year, did you stay overnight in a military facility as a patient?
H98003	In the last year, how many nights did you stay overnight in a military facility as a patient?
H98004	In the last year, how many nights did you stay overnight in a civilian facility as a patient?
H98005A	In the last year, how many overnight stays in a civilian facility were paid by TRICARE?
H98005B	In the last year, how many overnight stays in a civilian facility were paid by private payment, Medicare, or Medicaid?
H98006	In the last year, did you make any outpatient visits to a military facility?
H98007	In the last year, how many outpatient visits did you make to a military facility?
H98008	In the last year, did you make any outpatient visits to a civilian facility?
H98009A	In the last year, how many outpatient visits in a civilian facility were paid by TRICARE?
H98009B	In the last year, how many outpatient visits in a civilian facility were paid by private payment, Medicare, or Medicaid?
H98010	In the last year, did you go to a military emergency room for your own care?
H98011	In the last year, how many times did you go to a military emergency room for your own care?
H98012	In the last year, did you go to a civilian emergency room for your own care?
H98013A	In the last year, how many emergency room visits were paid by TRICARE?
H98013B	In the last year, how many emergency room visits were paid by private payment, Medicare, or Medicaid?
H98014	In the last year, how many prescriptions were written by a civilian, but filled with a military pharmacy?
H98015	When did you last visit a doctor/nurse for any reason?
H98016	When was your last physical exam, not counting when you were sick or pregnant?
H98017A	When was your last blood pressure reading?

Name	Content/Topic
H98017B	Do you know if your blood pressure is too high?
H98018	When was your last cholesterol screening?
H98019	When was your last flu shot?
H98020	When was the last time you had a general dental exam/checkup?
H98021	Have you smoked at least 100 cigarettes in your entire life?
H98022	Do you smoke daily, some days, or not at all?
H98023	How long has it been since you quit smoking cigarettes?
H98024	In the last year, how many visits were you advised to quit smoking?
H98025	In the last year, have you used chewing tobacco, snuff, or other smokeless tobacco?
SRSEX	Are you male or female?
H98027	When was the last time you had a prostate disease exam or blood test?
H98028	When did you last have a routine female examination with a pap smear?
H98029A	Are you under age 40?
H98029B	When was the last time your breasts were examined by a mammography or other X-ray like procedure?
H98029C	When was the last time your breasts were examined in a clinical exam?
H98030	Have you been pregnant in the last year or are you pregnant now?
H98031	When did you first receive care from a doctor for your pregnancy?
H98032	How well do you understand TRICARE overall?
H98033A	How well do you understand the benefits offered under TRICARE Prime/Senior?
H98033B	How well do you understand the benefits offered under TRICARE Extra/Standard?
H98033C	How well do you understand the costs to you under TRICARE Prime/Senior?
H98033D	How well do you understand the costs to you under TRICARE Extra/Standard?
H98033E	How well do you understand the choice in selecting your primary care physician under TRICARE Prime/Senior?
H98033F	How well do you understand the choice in selecting your primary care physician under TRICARE Extra/Standard?
H98033G	How well do you understand the choice to use civilian health care providers under TRICARE Prime/Senior?
H98033H	How well do you understand the choice to use civilian health care providers under TRICARE Extra/Standard?
H98033I	How well do you understand the procedures for making an appointment under TRICARE Prime/Senior?
H98033J	How well do you understand the procedures for making an appointment under TRICARE Extra/Standard?
H98034A	The source for your information on TRICARE came from a presentation.
H98034B	The source for your information on TRICARE came from an information package mailed.

Name	Content/Topic
H98034C	The source for your information on TRICARE came from a military doctor or other health care professional.
H98034D	The source for your information on TRICARE came from a civilian doctor or other health care professional.
H98034E	The source for your information on TRICARE came from the TRICARE information telephone number.
H98034F	The source for your information on TRICARE came from a base newspaper.
H98034G	The source for your information on TRICARE came from a regional paper.
H98034H	The source for your information on TRICARE came from friends and neighbors.
H98034I	The source for your information on TRICARE came from a local military treatment facility.
H98034J	The source for your information on TRICARE came from a radio or TV commercial.
H98034K	The source for your information on TRICARE came from an Internet web site.
H98034L	The source for your information on TRICARE came from some other source.
H98035	Are you active duty?
H98036	Are you currently enrolled in TRICARE Prime or TRICARE Senior Prime?
H98037	If you are currently enrolled in TRICARE Prime, how likely are you to disenroll in TRICARE Prime for a different type of insurance coverage in the next year?
H98038	As a member of TRICARE Prime, do you have a primary care manager based in a military of civilian facility?
H98039	If you are not a member of TRICARE Prime, how likely are you to enroll in TRICARE Prime in the next year?
H98040	In your use of TRICARE Extra/Standard in the past year, when you visited a health care provider, did you usually use a provider in the TRICARE Extra network?
H98041A	How strongly do you agree or disagree that TRICARE Prime or TRICARE Senior improves access to care?
H98041B	How strongly do you agree or disagree that TRICARE Prime or TRICARE Senior improves preventive care?
H98041C	How strongly do you agree or disagree that TRICARE Prime or TRICARE Senior makes it harder to see a specialist?
H98041D	How strongly do you agree or disagree that TRICARE Prime or TRICARE Senior makes it easier to get phone advice?
H98041E	How strongly do you agree or disagree that TRICARE Prime or TRICARE Senior saves money on health care?
H98042	Did you rely on TRICARE Prime for most of your care in the last year?
H98043	In the last year, how many months were you covered by TRICARE Prime?
H98044	Are you currently covered by any type of supplemental insurance?
H98045A	Which supplemental insurance are you covered by -- CHAMPUS?
H98045B	Which supplemental insurance are you covered by -- Medicare (Medigap)?
H98045C	Which supplemental insurance are you covered by -- Other supplemental insurance that covers some or all of your out-of-pocket expenses not paid by your primary insurer?

Name	Content/Topic
H98045D	Which supplemental insurance are you covered by -- None?
H98046	Has TRICARE had any effect on your decision whether or not to be covered by CHAMPUS supplemental insurance or /Medicare supplemental insurance?
H98047A	Besides any TRICARE or supplemental plans discussed in questions 45 and 46, what other insurance or managed care plans are you currently covered by -- a civilian fee-for-service insurance?
H98047B	Besides any TRICARE or supplemental plans discussed in questions 45 and 46, what other insurance or managed care plans are you currently covered by -- a civilian HMO?
H98047C	Besides any TRICARE or supplemental plans discussed in questions 45 and 46, what other insurance or managed care plans are you currently covered by --a civilian PPO or POS?
H98047D	Besides any TRICARE or supplemental plans discussed in questions 45 and 46, what other insurance or managed care plans are you currently covered by -- Medicare, Part A?
H98047E	Besides any TRICARE or supplemental plans discussed in questions 45 and 46, what other insurance or managed care plans are you currently covered by -- Medicare, Part B?
H98047F	Besides any TRICARE or supplemental plans discussed in questions 45 and 46, what other insurance or managed care plans are you currently covered by -- FEHBP?
H98047G	Besides any TRICARE or supplemental plans discussed in questions 45 and 46, what other insurance or managed care plans are you currently covered by -- None?
H98048	Has TRICARE had any effect on your decision whether or not to be covered by private insurance or to join a private HMO or PPO?
H98049A	In the last year, how much “out-of-pocket” money did you and your family members who were eligible for your military medical benefits spend on medical care -- no expenses?
H98049B	In the last year, how much “out of pocket” money did you and your family members who were eligible for your military medical benefits spend on medical care-amount rounded to the nearest whole dollar?
H98050	Which health care plan did you use most in the last year?
H98051	Do you have one person you consider as your personal doctor or nurse?
H98052	How would you rate your personal doctor or nurse now?
H98053	In the last year, did you or a doctor think you needed to see a specialist?
H98054	In the last year, how much of a problem, if any, was it to get a referral to a specialist that you needed to see?
H98055	In the last year, did you see a specialist?
H98056	How would you rate the specialist seen most often in the last year?
H98057	In the last year, did you need any mental health treatment or counseling?
H98058	In the last year, how much of a problem did you have getting mental health treatment or counseling from your plan?
H98059	In the last year, how much of a problem, if any, was it to get the care you or a doctor believed was necessary?
H98060	In the last year, how much of a problem, if any, were delays in health care while you waited for approval from your health plan?
H98061	In the last year, did you or anyone else send in claims to a health plan?

Name	Content/Topic
H98062	How often did your health plan handle your claims in a reasonable time?
H98063	How often did your health plan handle your claims correctly?
H98064	In the last year, before you went for care, how often did your health plan inform you of the amount you would have to pay?
H98065	In the last year, did you look for any information in written materials from your health plan?
H98066	In the last year, how much of a problem, if any, was it to find or understand information in the written materials?
H98067	In the last year, did you call your health plan's customer service for information or help?
H98068	In the last year, how much of a problem, if any, was it to get the help you needed from customer service?
H98069A	In the last year, did you have any experience with paperwork for your health plan?
H98069B	In the last year, how much of a problem, if any, did you have with paperwork from your health plan?
H98070	Have you called or written your plan with a complaint or problem?
H98071	Was your complaint or problem settled to your satisfaction?
H98072	How long did it take for the health plan to resolve your complaint?
H98073	How would you rate all your experience with your health plan now?
H98074	In the last year, what type of facility did you go to most often for health care?
H98075	In the last year, how often did you or a family member have to make 3 or more phone calls to make an appointment with a health care professional?
H98076A	In the last year, did you have any well-patient visits, such as a physical?
H98076B	In the last year, did you have any referrals to specialty care?
H98077A	How many weeks did you usually have to wait between the time you made an appointment for a well-patient visit, such as a physical, and when you actually saw the provider?
H98077B	How many weeks did you usually have to wait between the time you made an appointment for a specialty referral, such as a cardiologist visit, and when you actually saw the provider?
H98078	In the last year, did you have any routine visits for minor illness or injury?
H98079	How many days did you usually have to wait between the time you made an appointment for a routine visit for a minor illness or injury and when you actually saw the provider?
H98080	In the last year, did you receive any urgent care visits for an acute injury or illness?
H98081	How many days did you usually have to wait between the time you made an appointment for an urgent care visit and when you actually saw the provider?
H98082	How often did it take you more than 30 minutes to travel to the facility where you visit your primary care manager?
H98083	In the last year, how often did you wait in the doctor's office or clinic more than 30 minutes past your appointment time for routine care?
H98084	In the last year, did you call a doctor's office during regular office hours to get help or advice for yourself?
H98085	When you called during normal office hours, how often did you get the help or advice you needed?

Name	Content/Topic
H98086	In the last year, did you have an illness or injury where you needed to see a doctor or other health care provider immediately?
H98087	When you needed to see a doctor or other health care provider immediately for an illness or injury, how often did you get care as soon as you wanted?
H98088	In the last year, did you make any routine appointments with a doctor or other health care provider, for regular or routine health care?
H98089	In the last year, how often did you get an appointment for regular or routine health care as soon as you wanted?
H98090	How often did office staff at a doctor's office or clinic treat you with courtesy and respect?
H98091	How often was office staff at a doctor's office or clinic as helpful as you thought they should be?
H98092	How often did doctors or other health providers listen carefully to you?
H98093	How often did doctors or other health providers explain thing in a way you could understand?
H98094	How often did doctors or other health providers show respect for what you had to say?
H98095	How often did doctors or other health providers spend enough time with you?
H98096	In the last year, rate all your health care from the facility you used most often.
H98097	Did you receive any health care from a military facility in the last year?
H98098	How long did you usually wait between the day you made an appointment for minor illness or injury, and the day you actually saw a military provider?
H98099A	How strongly do you agree or disagree that you are satisfied with the health care received at military facilities in the last year?
H98099B	How strongly do you agree or disagree that you would recommend military health care to family or friends who need care?
H98100A	How would you rate the following aspect of the health care received at military facilities in the last year: convenient location?
H98100B	How would you rate the following aspect of the health care received at military facilities in the last year: convenient hours?
H98100C	How would you rate the following aspect of the health care received at military facilities in the last year: access to health care when needed?
H98100D	How would you rate the following aspect of the health care received at military facilities in the last year: access to a specialist when needed?
H98100E	How would you rate the following aspect of the health care received at military facilities in the last year: access to hospital care when needed?
H98100F	How would you rate the following aspect of the health care received at military facilities in the last year: access to medical care in emergency?
H98100G	How would you rate the following aspect of the health care received at military facilities in the last year: ease of making appointments for health care by phone?
H98100H	How would you rate the following aspect of the health care received at military facilities in the last year: length of time waiting at office to see the provider?
H98100I	How would you rate the following aspect of the health care received at military facilities in the last year: length of time you wait between making an appointment for routine care and the day of your visit?

Name	Content/Topic
H98100J	How would you rate the following aspect of the health care received at military facilities in the last year: availability of health care information or advice by phone?
H98100K	How would you rate the following aspect of the health care received at military facilities in the last year: services available for getting prescriptions filled?
H98100L	How would you rate the following aspect of the health care received at military facilities in the last year: thoroughness of exam?
H98100M	How would you rate the following aspect of the health care received at military facilities in the last year: ability to diagnose my health care problems?
H98100N	How would you rate the following aspect of the health care received at military facilities in the last year: skill of health care providers?
H98100O	How would you rate the following aspect of the health care received at military facilities in the last year: thoroughness of treatment?
H98100P	How would you rate the following aspect of the health care received at military facilities in the last year: the outcomes of your health care (how much you are helped)?
H98100Q	How would you rate the following aspect of the health care received at military facilities in the last year: overall quality of health care?
H98100R	How would you rate the following aspect of the health care received at military facilities in the last year: provider's explanation of health care procedures?
H98100S	How would you rate the following aspect of the health care received at military facilities in the last year: provider's explanation of medical tests?
H98101	Did you receive any health care from a civilian provider in the last year?
H98102	How long did you usually wait between the day you made an appointment for minor illness or injury and the day you actually saw a civilian provider?
H98103A	How strongly do you agree or disagree that you are satisfied with the care you received at civilian facilities?
H98103B	How strongly do you agree or disagree that you would recommend civilian health care to a family or friend who needs care?
H98104A	How would you rate the following aspect of the health care received at civilian facilities in the last year: convenience of location of treatment?
H98104B	How would you rate the following aspect of the health care received at civilian facilities in the last year: convenience of hours?
H98104C	How would you rate the following aspect of the health care received at civilian facilities in the last year: access to health care whenever you need it?
H98104D	How would you rate the following aspect of the health care received at civilian facilities in the last year: access to a specialist if you need one?
H98104E	How would you rate the following aspect of the health care received at civilian facilities in the last year: access to hospital if you need it?
H98104F	How would you rate the following aspect of the health care received at civilian facilities in the last year: access to medical care in an emergency?
H98104G	How would you rate the following aspect of the health care received at civilian facilities in the last year: ease of making appointments for health care by phone?

Name	Content/Topic
H98104H	How would you rate the following aspect of the health care received at civilian facilities in the last year: length of time you wait at office to see the provider?
H98104I	How would you rate the following aspect of the health care received at civilian facilities in the last year: length of time you wait between making an appointment for routine care and the day of the visit?
H98104J	How would you rate the following aspect of the health care received at civilian facilities in the last year: availability of health care information or advice by phone?
H98104K	How would you rate the following aspect of the health care received at civilian facilities in the last year: services available for getting prescriptions filled?
H98104L	How would you rate the following aspect of the health care received at civilian facilities in the last year: thoroughness of examination?
H98104M	How would you rate the following aspect of the health care received at civilian facilities in the last year: ability to diagnose my health care problems?
H98104N	How would you rate the following aspect of the health care received at civilian facilities in the last year: skill of health care providers?
H98104O	How would you rate the following aspect of the health care received at civilian facilities in the last year: thoroughness of treatment?
H98104P	How would you rate the following aspect of the health care received at civilian facilities in the last year: the outcomes of your health care (how much you are helped)?
H98104Q	How would you rate the following aspect of the health care received at civilian facilities in the last year: overall quality of health care?
H98104R	How would you rate the following aspect of the health care received at civilian facilities in the last year: provider's explanation of health care procedures?
H98104S	How would you rate the following aspect of the health care received at civilian facilities in the last year: provider's explanation of medical tests?
H98105	In general, how is your health?
H98106A	Does your health now limit you in moderate activities?
H98106B	Does your health now limit you from climbing several flights of stairs?
H98107A	In the last month, have you accomplished less than you would like as a result of your physical health?
H98107B	In the last month, were you limited in the kind of work or other activities as a result of your physical health?
H98108A	In the last month, have you accomplished less than you would like as a result of any emotional problems?
H98108B	In the last month, were you unable to do work or other activities as carefully as usual as a result of any emotional problems?
H98109	In the last month, how much did pain interfere with normal work?
H98110A	In the last month, have you felt calm and peaceful?
H98110B	In the last month, have you had a lot of energy?
H98110C	In the last month, have you felt downhearted and blue?

Name	Content/Topic
H98111	In the last month, how much has your physical health or emotional problems interfered with your social activities?
H98112	In the last month, how many days did you miss from work due to your own illness or injury?
H98113	What was your family's total income in 1997 before taxes?
SRMARST	Which of the following best describes your current marital status?
SRAGE	What is your current age?
SREDA	8th grade or less?
SREDB	Some high school, but did not graduate?
SREDC	High school graduate or GED?
SREDD	Some college or 2-year degree?
SREDE	4-year college graduate?
SREDF	More than 4-year college degree?
SRRACEA	American Indian or Alaska Native?
SRRACEB	Asian?
SRRACEC	Black or African American?
SRRACED	Hispanic or Latino?
SRRACEE	Native Hawaiian/other Pacific Islander?
SRRACEF	White?
H98118A	Are you on active duty?
H98118B	Are you currently involved in operational deployment, a duty position that might require you to deploy quickly, or an operational tour?
H98119	Are you the person this questionnaire is addressed to?
SRMO	What month was this survey completed?
SRDAY	What day was this survey completed?
SRYEAR	What year was this survey completed?
DRC SURVEY FIELDING VARIABLES	
ARVDATE	Date survey arrived
BATCH	DRC batch number applied for scanning
SERIAL	DRC serial number applied for scanning
SCANDATE	Date survey scanned
LITHO	DRC mail identification number
INRECNO	Master SCS ID number
MAILTYP	Mail type
MAILING	Mailing number
DUPRET	Multiple returns – excludes blanks
DUPRET2	Multiple returns – includes blanks

Name	Content/Topic
REFUSE	Refused
MISC	Miscellaneous call
FLAG_DUP	Additional survey indicator
RETCOUNT	Respondent return sequence number
RETPROC	Return process variable
	RECODED QUESTIONNAIRE RESPONSES
SRDATE	Date Survey completed – Recoded
SRAGE_R	Current age – Recoded
SREDHIGH	What is the highest grade or level of school you have completed? - Recoded
H98001_R	In the last year, did you receive any health care at a health care facility or from a health care professional? – Recoded
H98002_R	In the last year, did you stay overnight in a military facility as a patient? - Recoded
H98003_R	In the last year, how many nights did you stay overnight in a military facility as a patient? – Recoded
H98004_R	In the last year, how many nights did you stay overnight in a civilian facility as a patient? - Recoded
H98005AR	In the last year, how many overnight stays in a civilian facility were paid by TRICARE? - Recoded
H98005BR	In the last year, how many overnight stays in a civilian facility were paid by private payment, Medicare, or Medicaid? – Recoded
H98006_R	In the last year, did you make any outpatient visits to a military facility? - Recoded
H98007_R	In the last year, how many outpatient visits did you make to a military facility? - Recoded
H97008_R	In the last year, did you make any outpatient visits to a civilian facility? - Recoded
H98009AR	In the last year, how many outpatient visits in a civilian facility were paid by TRICARE? - Recoded
H98009BR	In the last year, how many outpatient visits in a civilian facility were paid by private payment, Medicare, or Medicaid? – Recoded
H98010_R	In the last year, did you go to a military emergency room for your own care? - Recoded
H98011_R	In the last year, how many times did you go to a military emergency room for your own care? – Recoded
H98012_R	In the last year, did you go to a civilian emergency room for your own care? – Recoded
H98013AR	In the last year, how many emergency room visits were paid by TRICARE? – Recoded
H98013BR	In the last year, how many emergency room visits were paid by private payment, Medicare, or Medicaid? – Recoded
H98021_R	Have you smoked at least 100 cigarettes in your entire life? – Recoded
H98022_R	Do you smoke daily, some days, or not at all? – Recoded
H98023_R	How long has it been since you quit smoking cigarettes? – Recoded
H98024_R	In the last year, in how many visits were you advised to quit smoking? - Recoded
XSEXA	Are you male or female? – Recoded
H98027_R	When was the last time you had a prostate disease exam or blood test? – Recoded

Name	Content/Topic
H98028_R	When did you last have a routine female examination with a pap smear? – Recoded
H98029AR	Are you under age 40? – Recoded
H98029BR	When was the last time your breasts were examined by a mammography or other X-ray like procedure?- Recoded
H98029CR	When was the last time your breasts were examined in a clinical exam? – Recoded
H98030_R	Have you been pregnant in the last year or are you pregnant now? – Recoded
H98031_R	When did you first receive care from a doctor for your pregnancy? – Recoded
H98035_R	Are you active duty? – Recoded
H98036_R	Are you currently enrolled in TRICARE Prime or TRICARE Senior Prime? – Recoded
H98037_R	If you are currently enrolled in TRICARE Prime, how likely are you to disenroll in TRICARE Prime for a different type of insurance coverage in the next year? – Recoded
H98038_R	As a member of TRICARE Prime, do you have a primary care manager based in a military of civilian facility? – Recoded
H98039_R	If you are not a member of TRICARE Prime, how likely are you to enroll in TRICARE Prime in the next year? – Recoded
H98040_R	In your use of TRICARE Extra/Standard in the past year, when you visited a health care provider, did you usually use a provider in the TRICARE Extra network? – Recoded
H98042_R	Did you rely on TRICARE Prime for most of your care in the last year? – Recoded
H98043_R	In the last year, how many months were you covered by TRICARE Prime? – Recoded
H98044_R	Are you currently covered by any type of supplemental insurance? – Recoded
H98045AR	Which supplemental insurance are you covered by -- CHAMPUS?- Recoded
H98045BR	Which supplemental insurance are you covered by -- Medicare (Medigap)? – Recoded
H98045CR	Which supplemental insurance are you covered by -- Other supplemental insurance that covers some or all of your out-of-pocket expenses not paid by your primary insurer? – Recoded
H98045DR	Which supplemental insurance are you covered by -- None? – Recoded
H98046_R	Has TRICARE had any effect on your decision whether or not to be covered by CHAMPUS supplemental insurance or /Medicare supplemental insurance? – Recoded
H98049AR	In the last year, how much “out-of-pocket” money did you and your family members who were eligible for your military medical benefits spend on medical care -- no expenses? – Recoded
H98049BR	In the last year, how much “out-of-pocket” money did you and your family members who were eligible for your military medical benefits spend on medical care --amount rounded to the nearest whole dollar? -- Recoded
H98051_R	Do you have one person you consider as your personal doctor or nurse? – Recoded
H98052_R	How would you rate your personal doctor or nurse now? – Recoded
H98053_R	In the last year, did you or a doctor think you needed to see a specialist? – Recoded
H98054_R	In the last year, how much of a problem, if any, was it to get a referral to a specialist that you needed to see? – Recoded
H98055_R	In the last year, did you see a specialist? – Recoded
H98056_R	How would you rate the specialist seen most often in the last year? – Recoded

Name	Content/Topic
H98057_R	In the last year, did you need any mental health treatment or counseling? – Recoded
H98058_R	In the last year, how much of a problem did you have getting mental heath treatment or counseling from your plan? – Recoded
H98059_R	In the last year, how much of a problem, if any, was it to get the care you or a doctor believed was necessary? – Recoded
H98060_R	In the last year, how much of a problem, if any, were delays in health care while you waited for approval from your health plan? -- Recoded
H98061_R	In the last year, did you or anyone else send in claims to a health plan? – Recoded
H98065_R	In the last year, did you look for any information in written materials from your health plan? – Recoded
H98066_R	In the last year, how much of a problem, if any, was it to find or understand information in the written materials? – Recoded
H98067_R	In the last year, did you call your health plan's customer service for information or help? – Recoded
H98068_R	In the last year, how much of a problem, if any, was it to get the help you needed from customer service? – Recoded
H98069AR	In the last year, did you have any experience with paperwork for your health plan? – Recoded
H98069BR	In the last year, how much of a problem, if any, did you have with paperwork from your health plan? – Recoded
H98070_R	Have you called or written your plan with a complaint or problem? – Recoded
H98074_R	In the last year, what type of facility did you go to most often for health care? – Recoded
H98075_R	In the last year, how often did you or a family member have to make 3 or more phone calls to make an appointment with a health care professional? – Recoded
H98077AR	How many weeks did you usually have to wait between the time you made an appointment for a well-patient visit, such as a physical, and when you actually saw the provider? -- Recoded
H98077BR	How many weeks did you usually have to wait between the time you made an appointment for a specialty referral, such as a cardiologist visit, and when you actually saw the provider? – Recoded
H98078_R	In the last year, did you have any routine visits for minor illness or injury? – Recoded
H98079_R	How many days did you usually have to wait between the time you made an appointment for a routine visit for a minor illness or injury and when you actually saw the provider? – Recoded
H98080_R	In the last year, did you receive any urgent care visits for an acute injury or illness? – Recoded
H98081_R	How many days did you usually have to wait between the time you made an appointment for an urgent care visit and when you actually saw the provider? – Recoded
H98082_R	How often did it take you more than 30 minutes to travel to the facility where you visit your promary care manager? – Recoded
H98083_R	In the last year, how often did you wait in the doctor's office or clinic more than 30 minutes past your appointment time for routine care? – Recoded
H98084_R	In the last year, did you call a doctor's office during regular office hours to get help or advice for yourself? – Recoded
H98085_R	When you called during normal office hours, how often did you get the help or advice you needed? – Recoded

Name	Content/Topic
H98086_R	In the last year, did you have an illness or injury where you needed to see a doctor or other health care provider immediately? – Recoded
H98087_R	When you needed to see a doctor or other health care provider immediately for an illness or injury, how often did you get care as soon as you wanted? – Recoded
H98088_R	In the last year, did you make any routine appointments with a doctor or other health care provider, for regular or routine health care? – Recoded
H98089_R	In the last year, how often did you get an appointment for regular or routine health care as soon as you wanted? – Recoded
H98090_R	How often did office staff at a doctor's office or clinic treat you with courtesy and respect? – Recoded
H98091_R	How often was office staff at a doctor's office or clinic as helpful as you thought they should be? – Recoded
H98092_R	How often did doctors or other health providers listen carefully to you? – Recoded
H98093_R	How often did doctors or other health providers explain thing in a way you could understand? – Recoded
H98094_R	How often did doctors of other health providers show respect for what you had to say? – Recoded
H98095_R	How often did doctors or other health providers spend enough time with you? – Recoded
H98097_R	Did you receive any health care from a military facility in the last year? – Recoded
H98101_R	Did you receive any health care from a civilian provider in the last year? – Recoded
H98118AR	Are you on active duty? – Recoded
H98118BR	Are you currently involved in operational deployment, a duty position that might require you to deploy quickly, or an operational tour? – Recoded
	CODING SCHEME FLAGS AND COUNTS
N4	Coding Scheme flag for Note 4
N5	Coding Scheme flag for Note 5
N6	Coding Scheme flag for Note 6
N7	Coding Scheme flag for Note 7
N8	Coding Scheme flag for Note 8
N9	Coding Scheme flag for Note 9
N10	Coding Scheme flag for Note 10
N11	Coding Scheme flag for Note 11
N12A	Coding Scheme flag for Note 12A
N12B	Coding Scheme flag for Note 12B
N12C	Coding Scheme flag for Note 12C
N13	Coding Scheme flag for Note 13
N14	Coding Scheme flag for Note 14
N15	Coding Scheme flag for Note 15
N16	Coding Scheme flag for Note 16

Name	Content/Topic
N17	Coding Scheme flag for Note 17
N18	Coding Scheme flag for Note 18
N19	Coding Scheme flag for Note 19
N20	Coding Scheme flag for Note 20
N21	Coding Scheme flag for Note 21
N22	Coding Scheme flag for Note 22
N23	Coding Scheme flag for Note 23
N24	Coding Scheme flag for Note 24
N25	Coding Scheme flag for Note 25
N26	Coding Scheme flag for Note 26
N27	Coding Scheme flag for Note 27
N28	Coding Scheme flag for Note 28
N29	Coding Scheme flag for Note 29
N30	Coding Scheme flag for Note 30
N31	Coding Scheme flag for Note 31
N32	Coding Scheme flag for Note 32
N33	Coding Scheme flag for Note 33
N34	Coding Scheme flag for Note 34
N35	Coding Scheme flag for Note 35
N36	Coding Scheme flag for Note 36
N37	Coding Scheme flag for Note 37
N38A	Coding Scheme flag for Note 38A
N38B	Coding Scheme flag for Note 38B
N38C	Coding Scheme flag for Note 38C
N38D	Coding Scheme flag for Note 38D
N38E	Coding Scheme flag for Note 38E
N38F	Coding Scheme flag for Note 38F
N38G	Coding Scheme flag for Note 38G
N38H	Coding Scheme flag for Note 38H
N38I	Coding Scheme flag for Note 38I
N38J	Coding Scheme flag for Note 38J
N38K	Coding Scheme flag for Note 38K
N38L	Coding Scheme flag for Note 38L
N38M	Coding Scheme flag for Note 38M
MISS_9	Count of no response (invalid skip)

Name	Content/Topic
MISS_8	Count of multiple response errors
MISS_7	Count of out-of-range errors
MISS_6	Count of not applicable/valid skips
MISS_4	Count of incomplete grid errors
MISS_1	Count of skip pattern violations
MISS_TOT	Total number of missing responses
	CONSTRUCTED VARIABLES
XENRLLMT	Beneficiary's enrollment status in TRICARE Prime (see page 52)
XENR_PCM	TRICARE Enrollment by PCM type (see page 52)
XINS_COV	Insurance Coverage (see page 54)
XQENROLL	TRICARE Enrollment according to questionnaire responses (see page 53)
XREGION	Beneficiary's regional assignment (15 regions and unassigned) (see page 47)
XBNFGRP	Beneficiary group with population age 65 and over excluded from Active Duty and Family Members of Active Duty (see page 51)
KMIL98	Satisfied with military care, coded in binary form 1 / 2 (see page 55)
KCIV98	Satisfied with civilian care, coded in binary form 1 / 2 (see page 55)
KENRINTN	Intention to enroll, coded as binary form 1 / 2 (see page 55)
KDISENRL	Intention to disenroll, coded as binary form 1 / 2 (see page 56)
KNOWLG98	No TRICARE knowledge, coded as binary form 1 / 2 (see page 56)
KMILWAT1	Waited less than 4 weeks for well-patient visit at military facility, coded in binary form 1 / 2 (see page 56)
KCIVWAT1	Waited less than 4 weeks for well-patient visit at civilian facility, coded in binary form 1 / 2 (see page 56)
KMILOFFC	Waited less than 30 minutes at military facility, coded in binary form 1 / 2 (see page 56)
KCIVOFFC	Waited less than 30 minutes at civilian facility, coded in binary form 1 / 2 (see page 56)
KBGPRB1	Big problem getting referrals to a specialist coded in binary form 1 / 2 (see page 56)
KBGPRB2	Big problem getting necessary care coded in binary form 1 / 2 (see page 56)
KMILEMER	One or more emergency room visits to military facility, coded in binary form 1 / 2 (see page 64)
KCIVEMER	One or more emergency room visits to civilian facility, coded in binary form 1 / 2 (see page 64)
KTOTEMER	One or more emergency room visits to any facility, coded in binary form 1 / 2 (see page 64)
KMILOP98	Outpatient visits to military facility (see page 64)
KCIVOP98	Outpatient visits to civilian facility (see page 64)
KTOTOP98	Total outpatient visits (see page 64)
KPRSCPTN	7 or more civilian prescriptions filled by military pharmacy, coded in binary form 1 / 2 (see page 65)
HP_PRNTL	If pregnant in the last year, received prenatal care in first trimester, coded in binary form 1 / 2 (see page 61)
HP_MAMOG	Women age 50 and over, had a mammogram within past 2 years, coded in binary form 1 / 2 (see page 61)

Name	Content/Topic
HP_PAP	For all women, had a pap smear in last 3 years, coded in binary form 1 / 2 (see page 61)
HP_BP	Had a blood pressure check in last 2 years and know results, coded in binary form 1 / 2 (see page 61)
HP_FLU	For persons age 65 and older, had a flu shot in last 12 months, coded in binary form 1 / 2 (see page 61)
HP_PROS	For men age 50 and over, had a prostate exam within last 12 months, coded in binary form 1 / 2 (see page 61)
SF12PCS	SF12 Physical Health Summary Score – Average (see page 58)
SF12MCS	SF12 Mental Health Summary Score – Average (see page 58)
KMID_H	Physical Health Status (age-adjusted) below the median, coded in binary form 1 / 2 (see page 58)
KMID_MH	Mental Health Status (age-adjusted) below the median, coded in binary form 1 / 2 (see page 58)
XDEMOSTE	7 demonstration sites by age group (see page 49)
XDEMO	7 demonstration sites for age 18 and over (see page 49)
DEDUC	Some post-secondary education, coded in binary form 1 / 2 (see page 50)
DAGE	Age 65 or older, coded in binary form 1 / 2 (see page 51)
DINCOM1	Annual income less than $20,000, coded in binary form 1 / 2 (see page 51)
KIPMIL1	Stayed 1 or more nights in a MTF, coded in binary form 1 /2 (see page 63)
KIPMIL4	Stayed 4 or more nights in a MTF, coded in binary form 1 / 2 (see page 63)
KOPMIL1	Had 1 or more outpatient visits to a MTF, coded in binary form 1 / 2 (see page 64)
KOPMIL5	Had 5 or more outpatient visits to a MTF, coded in binary form 1 / 2 (see page 64)
KPRESC12	Have 12 or more civilian prescriptions filled by military pharmacy, coded in binary form 1 / 2 (see page 65)
KCOST_2	Out-of-pocket costs more than $200, coded in binary form 1 / 2 (see page 55)
KCIVINS	Is beneficiary covered by civilian insurance coded in binary form 1 / 2 (see page 54)
KMEDIGAP	Is beneficiary covered by Medigap or other supplemental insurance, coded in binary form 1 / 2 (see page 54)
	WEIGHTS
WRWT98	Final full-sample weight
WRWT1	Replicated/Jackknife weight 1
WRWT2	Replicated/Jackknife weight 2
WRWT3	Replicated/Jackknife weight 3
WRWT4	Replicated/Jackknife weight 4
WRWT5	Replicated/Jackknife weight 5
WRWT6	Replicated/Jackknife weight 6
WRWT7	Replicated/Jackknife weight 7
WRWT8	Replicated/Jackknife weight 8
WRWT9	Replicated/Jackknife weight 9

Name	Content/Topic
WRWT10	Replicated/Jackknife weight 10
WRWT11	Replicated/Jackknife weight 11
WRWT12	Replicated/Jackknife weight 12
WRWT13	Replicated/Jackknife weight 13
WRWT14	Replicated/Jackknife weight 14
WRWT15	Replicated/Jackknife weight 15
WRWT16	Replicated/Jackknife weight 16
WRWT17	Replicated/Jackknife weight 17
WRWT18	Replicated/Jackknife weight 18
WRWT19	Replicated/Jackknife weight 19
WRWT20	Replicated/Jackknife weight 20
WRWT21	Replicated/Jackknife weight 21
WRWT22	Replicated/Jackknife weight 22
WRWT23	Replicated/Jackknife weight 23
WRWT24	Replicated/Jackknife weight 24
WRWT25	Replicated/Jackknife weight 25
WRWT26	Replicated/Jackknife weight 26
WRWT27	Replicated/Jackknife weight 27
WRWT28	Replicated/Jackknife weight 28
WRWT29	Replicated/Jackknife weight 29
WRWT30	Replicated/Jackknife weight 30
WRWT31	Replicated/Jackknife weight 31
WRWT32	Replicated/Jackknife weight 32
WRWT33	Replicated/Jackknife weight 33
WRWT34	Replicated/Jackknife weight 34
WRWT35	Replicated/Jackknife weight 35
WRWT36	Replicated/Jackknife weight 36
WRWT37	Replicated/Jackknife weight 37
WRWT38	Replicated/Jackknife weight 38
WRWT39	Replicated/Jackknife weight 39
WRWT40	Replicated/Jackknife weight 40

2. Variable Naming Conventions

To preserve continuity with survey data from previous years, MPR followed the same variable naming conventions used for the 1996 and 1997 survey data with a few exceptions. In 1996 and 1997, all question numbers could be represented by two digits because there were fewer than 100 questions. In 1998, there are more than 100 questions; thus, variable names that include the question number require one additional digit. Variable naming conventions for the 1998 HCSDB are shown in Table 3.2. As in 1997, the suffix for edited (recoded) variables is _R to differentiate from the R suffix for some multiple response question variables.

3. Missing Value Conventions

The 1998 conventions for missing variables are the same as the 1997 conventions with two exceptions. First, all questionnaire responses are numeric fields. Second, three 1997 codes for missing values were never used and so were dropped this year:

- Variable not on survey form ('.F')
- No match on official records ('.G')
- Implied continuation ('.M')

All missing value conventions used in the 1998 HCSDB are shown in Table 3.3

TABLE 3.2

NAMING CONVENTIONS FOR 1998 HCSDB VARIABLES
(Variables Representing Survey Questions)

1st Character: Survey Type	2nd – 3rd Characters: Survey Year	4th – 6th Characters: Question #	Additional Characters: Additional Information
H= Health Beneficiaries (18 and Older, Form A)	98	001 to 120	A to S are used to label responses associated with a multiple response question --- __R denotes an edited variable

(Constructed Variables)

1st Characters: Variable Group	Additional Characters: Additional Information
SR=Self-reported demographic Data	Descriptive text, e.g., SRAGE
D=Constructed demographic data	Descriptive text, e.g., DAGE
N=Coding scheme notes	Number referring to Note, e.g., N2
X=Constructed independent variable	Descriptive text, e.g., XREGION
HP=Constructed Healthy Person 2000 variable	Descriptive text, e.g., HP_BP (had blood pressure screening in past two years and know the results)
SF12=SF-12 Health Status variables	Descriptive text, e.g., SF12PCS, SF12MCS (physical and mental health scores)
K=Constructed dependent variables	Descriptive text, e.g., KTOTINPT (total inpatient days)

TABLE 3.3

CODING OF MISSING DATA AND "NOT APPLICABLE" RESPONSES

ASCII or Raw Source Data	Edited and Cleaned SAS Data	Description
Numeric	Numeric	
-9	.	No response
-8	.A	Multiple response error
-7	.O	Out of range error
-6	.N	Not applicable or valid skip
-4	.I	Incomplete grid error
-5	.C	Question should have been skipped, not answered
	.B	No survey received

B. CLEANING AND EDITING

Data cleaning and editing procedures ensure that the data are free of inconsistencies and errors. Standard edit checks include the following:

- Checks for multiple surveys returned for any one person
- Checks for multiple responses to any question that should have one response
- Range checks for appropriate values within a single question
- Logic checks for consistent responses throughout the questionnaire

We computed frequencies and cross tabulations of values at various stages in the process to verify the accuracy of the data. Data editing and cleaning proceeded in the following way:

1. Scan Review

DRC spot checked the scanned results from the original survey to verify the accuracy of the scanning process and made any necessary corrections by viewing the returned survey.

2. Additional DRC Editing and Coding

In preparing the database for MPR, DRC used variable names and response values provided by MPR in the annotated questionnaire (see Appendix A). DRC delivered to MPR a database in SAS format. In this database, any questions with no response were encoded with a SAS missing value code of '.'. Also, as part of the scanning procedure, DRC entered the SAS missing value of '.A' for any question with multiple responses where a single response was required. Multiple column grids, such as the one for out-of-pocket expenses, that were not filled in completely were given the SAS missing value of '.I'; there were two exceptions to this rule:

- If there was a response in the right column(s) and none in the left column(s), the field was zero-filled rather than coded as an incomplete grid
- If there was a response in the left column(s) and none in the right column(s), the field was right-adjusted and then zero-filled rather than coded as an incomplete grid

3. Duplicate or Multiple Surveys

At this stage, DRC delivered to MPR a file containing one record for every beneficiary in the sample, plus additional records for every duplicate survey or multiple surveys received from any beneficiary. These duplicates and multiples were eliminated during record selection, and only the most complete questionnaire in the group was retained in the final database. Record selection is discussed in Section 3.D.

4. Removal of Sensitive or Confidential Information

The file that MPR received from DRC contained sensitive information such as Social Security Number (SSN). Any confidential information was immediately removed from the file. Each beneficiary had already been given a generic ID (MPRID) substitute during sample selection, the MPRID was retained as a means to uniquely identify each individual.

5. Initial Frequencies

MPR computed frequencies for all fields in the original data file. These tabulations served as a reference for the file in its original form and allowed comparison to final frequencies from previous years, helping to pinpoint problem areas that needed cleaning and editing. MPR examined these frequencies and cross-tabulations, using the results to adapt and modify the cleaning and editing specifications as necessary.

6. Data Cleaning and Recoding of Variables

MPR's plan for data quality is found in the 1998 Coding Scheme for Form A. It contains detailed instructions for all editing procedures used to correct data inconsistencies and errors. The Coding Scheme tables are found in Appendix D. These tables outline in detail the approach for recoding self-reported fields, doing range checks, logic checks, and skip pattern checks to insure that responses are consistent throughout the questionnaire. The Coding Scheme tables specify all possible original responses and any recoding, also indicating if backward coding or forward coding was used. Every skip pattern is assigned a note number shown in the annotated questionnaire (Appendix A). This note number defines the flag (for example, the Note 5 flag is N5) that is set to indicate the pattern of the original responses and any recoding. Thus, if the value of N5 is 2, the reader can look at line 2 in the Note 5 table for the original and recoded response values.

The SAS program implementing the coding scheme is found in Appendix K.2.

a. Check Self-Reported Fields

Several survey questions seek information that can be verified with DEERS data and/or sampling variables. Nevertheless, in recoding these self-reported fields (such as sex, active duty status, and TRICARE enrollment) we used the questionnaire responses unless they were missing; in which case, we used the DEERS data. For example, if the question on the sex of the beneficiary was not answered, the recoded variable for self-reported sex was not considered missing but was given the DEERS value for gender. If there was any disagreement between questionnaire responses and DEERS data, the questionnaire response generally took precedence. The only exception to this rule concerns age; in order to be consistent with survey analysis in earlier years, our recoded age variable is the calculated age in years (i.e. the difference between the date the survey is filled out, or scanned, and the beneficiary's date of birth from DEERS).

In many tables and charts in the reports, the DEERS information was used rather than the recoded self-reported information for active duty status and TRICARE enrollment.

b. Skip Pattern Checks

At several points in the survey, the respondent should skip certain questions. If the response pattern is inconsistent with the skip pattern, each response in the series will be checked to determine which are most accurate, given the answers to other questions. Questions that are appropriately skipped were set to the SAS missing value of '.N'. Inconsistent responses, such as answering questions that should be skipped or not answering questions that should be answered, were examined for patterns that could be resolved. Frequently, responses to subsequent questions provide the information needed to infer the response to a question that was left blank. The 1998 Coding Scheme for Form A (see Appendix D) specifically addresses every skip pattern and shows the recoded values for variables within each pattern; we back coded and/or forward coded to ensure that all responses are consistent within a sequence.

c. Range Checks

MPR verified each response to ensure that values are within range. For example, if a response puts the day of the month at 35, we recoded the day of the month to indicate that it is "out of range." This out-of-range response code is a SAS missing value of '.O'.

d. Missing Values

DRC initially encoded any question with missing responses to a SAS missing value code of '.'. After verifying skip patterns, MPR recoded some of these responses to reflect valid skips (SAS missing value code of '.N'). The complete list of codes for types of missing values such as multiple responses, incomplete grids, and questions that should not have been answered is shown in Table 3.3.

Occasionally, missing questionnaire responses can be inferred by examining other responses. For example, if a respondent fails to answer Question 10 about his/her use of a military emergency room, but goes on to report two military emergency room visits, then we assume that the answer to Question 10 should have been yes. Using this technique, we successfully recoded some missing questionnaire responses to legitimate responses.

e. Multiple Response Errors

If a respondent gives more than one answer to a question that should have only one answer, the response to that question was generally coded with a SAS missing value of '.A'. For certain questions, however, we used the greater or greatest value as the response. For example, if there was more than one response to the question about the highest education level obtained, we would deduce that the higher (or highest) level is the accurate response.

Using an approach similar to that used for missing values, we examined other questionnaire responses in an attempt to infer what the respondent intended for those questions with multiple marks. For example, if there are multiple responses to Question 88 "In the last 12 months, did you make any appointment with a doctor or other health provider for regular or routine health care?" and the response to Question 89 indicates that the respondent usually got an appointment for routine care as soon as they wanted, we assume that the response to Question 88 should have been yes.

f. Logic Checks

Most logic problems are due to inconsistent skip patterns, for example, when a male answers a question intended for women only. Other internal inconsistencies were resolved in the same manner as skip pattern inconsistencies — by looking at the answers to all related questions. For instance, several questions related to smoking were examined as a group to determine the most appropriate response pattern so that any inconsistent response could be reconciled to the other responses in the group.

7. Quality Assurance

MPR created an edit flag for each Coding Scheme table that indicates what, if any, edits were made in the cleaning and editing process. This logic was also used in previous years; variables such as N5 (see Appendix D) indicate exactly what pattern of the Coding Scheme was followed for a particular set of responses. These edit flags have a unique value for each set of original and recoded values, allowing us to match original values and recoded values for any particular sequence.

In order to validate the editing and cleaning process, MPR prepared cross-tabulations between the original variables and the recoded variables with the corresponding edit flag. This revealed any discrepancies that needed to be addressed. In addition, we compared unweighted frequencies of each variable with the frequencies from the original file to verify that each variable was accurately recoded. MPR reviewed these tabulations for each variable in the survey. If necessary, the earlier edit procedures were modified and the Coding Scheme program rerun. The resulting file was clean and ready for imputation and analysis.

C. RECORD SELECTION

To select final records, we first defined a code that classifies each sampled beneficiary as to his/her final response status. To determine this response status, we used postal delivery information provided by DRC for each sampled beneficiary. This information is contained in the FLAG_FIN variable which is described in Table 3.4

TABLE 3.4

FLAG_FIN VARIABLE

Value	Questionnaire Return Disposition	Reason/Explanation Given	Eligibility
1	Returned survey	Completed and returned	Eligible
2	Returned ineligible	Returned with at least one question marked and information that the beneficiary was ineligible	Ineligible
3	Returned blank	Information sent that beneficiary is temporarily ill or incapacitated	Eligible
4	Returned blank	Information sent that beneficiary is deceased	Ineligible
5	Returned blank	Information sent that beneficiary is incarcerated or permanently incapacitated	Ineligible
6	Returned blank	Information sent that beneficiary left military, or divorced after 7/1/98, or retired	Eligible
7	Returned blank	Information sent that beneficiary was not eligible on 7/1/98	Ineligible
8	Returned blank	Blank form accompanied by reason for not participating	Eligible
9	Returned blank	No reason given	----
10	No return	Temporarily ill or incapacitated. Information came in by phone	Eligible
11	No return	Active refuser. Information came in by phone	Eligible
12	No return	Deceased. Information came in by phone	Ineligible
13	No return	Incarcerated or permanently incapacitated. Information came in by phone	Ineligible
14	No return	Left military or divorced after 7/1/98, or retired. Information came in by phone	Eligible
15	No return	Not eligible on 7/1/99. Information came in by phone	Ineligible
16	No return	Other eligible. Information came in by phone	Eligible
17	No return	No reason	---
18	PND	No address remaining	---
19	PND	Address remaining at the close of field	---
20	Original Non-Locatable	No address at start of mailing	---
21	No return or returned blank	Written documentation declining participation, no reason given	Eligible
22	No return or returned blank	Hospitalized but no indication if temporary or permanent	---

Using the above variables in Table 3.4, we classified all sampled beneficiaries into four groups:

- **Group 1**: Eligible, Questionnaire Returned. Beneficiaries who were eligible for the survey and returned a questionnaire with at least one question answered (FLAG_FIN = 1)

- **Group 2**: Eligible, Questionnaire Not Returned (or returned blank). Beneficiaries who did not complete a questionnaire but who were determined to be eligible for military health care on July 1, 1998, that is, not deceased, not incarcerated, not permanently hospitalized, not divorced, and not having left service (FLAG_FIN = 3, 6, 8, 10, 11, 14, 16, 21)

- **Group 3**: Ineligible. Beneficiaries who were ineligible because of death, institutionalization, divorce, or no longer being in the MHS as of July 1, 1998 (FLAG_FIN = 2, 4, 5, 7, 12, 13, 15)

- **Group 4**: Eligibility Unknown. Beneficiaries who did not complete a questionnaire and for whom survey eligibility could not be determined (FLAG_FIN = 9, 17, 18, 19, 20, 22)

Group 1 was then divided into two subgroups according to the number of survey items completed (including legitimate skip responses):

- G1-1. Complete Questionnaire Returned

- G1-2. Incomplete Questionnaire Returned

G1-1 consists of eligible respondents who answered "enough" questions to be classified as having completed the questionnaire. G1-2 consists of eligible respondents who answered only a few questions. To determine if a questionnaire is complete, 18 key questions were chosen. These key questions were adapted from the complete questionnaire rule for the CAHPS 2.0. If nine or more of these key items are completed, then the questionnaire can be counted as complete. The reason for choosing 9 as the cut off is that it amounts to 50 percent; at least 50 percent of the questionnaire should be completed for it to be accepted as a complete. The key questions are: 6, 7, 8, 9A, 9B, 11, 13, 26, 43, 53, 65, 67, 69A, 73, 84, 86, 88, 105, 115, 116, 117.

Furthermore, we also subdivided Group 4 into the following:

- G4-1 for Locatable-blank return/no reason or no return/no reason (FLAG_FIN = 9, 17, 22)

- G4-2 for Nonlocatable-postal nondeliverable/no address, postal nondeliverable/had address, or original nonlocatable (FLAG_FIN = 18, 19, 20).

With this information, we can calculate the location rate (see Section 4.A).

With a code (FNSTATUS) for the final response/eligible status, we classified all sampled beneficiaries using the following values of FNSTATUS:

- 11 for G1-1

- 12 for G1-2

- 20 for Group 2

- 30 for Group 3
- 41 for G4-1
- 42 for G4-2

There were 286 duplicate questionnaires in the data set DRC delivered. All duplicates were classified into one of the above six groups. We then retained the one questionnaire for each beneficiary that had the most "valid" information for the usual record selection process. For example, if two returned questionnaires from the same beneficiary have FNSTATUS code values of 11, 12, 20, 41, or 42, we retained the questionnaire with the smaller value. However, if one of a pair of questionnaires belongs to Group 3 (FNSTATUS = 3, i.e., ineligible), then we regarded the questionnaire as being ineligible.

Only beneficiaries with FNSTATUS = 11 were retained. All other records were dropped. We retained 70,504 eligible respondents, 34.2 percent of the total attempted 1998 questionnaires.

D. CONSTRUCTED VARIABLES

One of the most important aspects of database development is the formation of constructed variables and scale variables to support analysis. Constructed variables are formed when no single question in the survey defines the construct of interest. In Table 3.1 there is a list of all constructed variables for 1998 along with the page reference where complete descriptions are found. Each constructed variable is discussed in this section and the relevant piece of SAS code is shown. All SAS programs can be found in Appendix K.

1. Demographic Variables

a. Region (XREGION)

Catchment area codes (CACSMPL) are used to classify beneficiaries into specific regions. The XREGION variable partitions all catchment areas into non-overlapped regions so that we can report catchment-level estimates in the catchment reports. The regions are defined as follows:

1 = Northeast

2 = Mid-Atlantic

3 = Southeast

4 = Gulfsouth

5 = Heartland

6 = Southwest

7,8 = Central

9 = Southern California

10 = Golden Gate

11 = Northwest

12 = Hawaii

13 = Europe

14 = Western Pacific Command (Asia)

15 = TRICARE Latin America

16 = Alaska

.= Unassigned (CACSMPL = 9999)

For the purposes of our analysis, Region 7 and Region 8 were combined.

```
/* XREGION -HEALTH CARE REGIONS */

  IF CACSMPL IN (35, 36, 37, 66, 67, 68, 69, 81, 86, 100, 123,
      306, 310, 321, 326, 330, 385, 413, 9901)
    THEN XREGION=1;  /* NORTHEAST */
  ELSE IF CACSMPL IN (89, 90, 91, 92, 120, 121, 122, 124, 335, 432,
      433, 9902)
     THEN XREGION=2; /* MIDATLANTIC */
  ELSE IF CACSMPL IN (39, 41, 45, 46, 47, 48, 49, 50, 51, 101, 103, 104,
     105, 356, 422, 9903)
     THEN XREGION=3;  /* SOUTHEAST & PR*/
  ELSE IF CACSMPL IN (1, 2, 3, 4, 38, 42, 43, 73, 74, 107, 297, 7139,
      9904)
     THEN XREGION=4;  /* GULFSOUTH */
  ELSE IF CACSMPL IN (55, 56, 60, 61, 95, 9905)
     THEN XREGION=5;  /* HEARTLAND */
  ELSE IF CACSMPL IN (13, 62, 64, 96, 97, 98, 109, 110, 112, 113,
     114, 117, 118, 338, 363, 364, 365, 366, 9906)
     THEN XREGION=6; /* SOUTHWEST */
  ELSE IF CACSMPL IN (8, 9, 10, 79, 83, 84, 85, 108, 9907)
     THEN XREGION=7; /* DESERT STATES */
  ELSE IF CACSMPL IN (32, 33, 53, 57, 58, 59, 75, 76, 77, 78, 93, 94, 106,
     119, 129, 7200, 9908) THEN XREGION=8; /* NORTH CENTRAL */
  ELSE IF CACSMPL IN (18, 19, 24, 29, 30, 131, 213, 248,
      5205, 9909)
     THEN XREGION=9; /* SOUTHERN CALIFORNIA */
  ELSE IF CACSMPL IN (14, 15, 28, 235, 250, 9910)
     THEN XREGION=10; /* GOLDEN GATE */
  ELSE IF CACSMPL IN (125, 126, 127, 128, 395, 9911)
     THEN XREGION=11; /* NORTHWEST */
  ELSE IF CACSMPL IN (52, 280, 287, 7043, 9912)
     THEN XREGION=12; /* HAWAII */
  ELSE IF CACSMPL IN (606, 607, 609, 617, 618, 623, 624, 629,
     633, 635, 653, 805, 806, 808, 814, 8931, 8982, 9913)
      THEN XREGION=13; /* EUROPE */
  ELSE IF CACSMPL IN (610, 612, 620, 621, 622, 637, 638, 639, 640,
       802, 804, 853, 862, 9914)
     THEN XREGION=14; /* WESTERN PACIFIC COMMAND*/
  ELSE IF CACSMPL IN (449, 613, 615, 616, 9915)
     THEN XREGION=15; /* LATIN AMERICA */
  ELSE IF CACSMPL IN (5, 6, 203, 9916)
     THEN XREGION=16; /* ALASKA */
  ELSE IF CACSMPL=9999 THEN XREGION=.;
            /*ASSIGN TO. IF 9999(ADDR MISSING)*/
```

b. Subvention Demonstration Areas (XDEMO)

The Medicare Subvention Demonstration is now under way in 10 MTFs in seven geographic areas. The people involved in this demonstration to test a new system of financing health care are MHS beneficiaries age 65 and older. The seven subvention areas (XDEMO) are defined as follows:

1 = Lackland AFB and Fort Sam Houston (San Antoino)

2 = Sheppard AFB and Fort Sill (Texas/Oklahoma)

3 = USAF Academy and Fort Carson (Colorado Springs)

4 = Keesler AFB

5 = Fort Lewis

6 = NH San Diego

7 = Denver AFB

8 = Balance of domestic MHS

. = All other respondents

```
/*Create a new variable called XDEMO for chart 2.3*/
 /* Combine under 65 with age 65 and over for each site July 7, 1999 */
    IF      XDEMOSTE IN ( 1, 2) THEN XDEMO = 1;    /* San Antonio      */
     ELSE IF XDEMOSTE IN ( 3, 4) THEN XDEMO = 2;    /* TexOma           */
     ELSE IF XDEMOSTE IN ( 5, 6) THEN XDEMO = 3;    /* Colorado Springs */
     ELSE IF XDEMOSTE IN ( 7, 8) THEN XDEMO = 4;    /* Keesler          */
     ELSE IF XDEMOSTE IN ( 9,10) THEN XDEMO = 5;    /* San Diego        */
     ELSE IF XDEMOSTE IN (11,12) THEN XDEMO = 6;    /* Fort Lewis       */
     ELSE IF XDEMOSTE IN (13,14) THEN XDEMO = 7;    /* Dover            */
     ELSE IF XDEMOSTE IN (15,16) THEN XDEMO = 8;    /* Balance Domestic */
```

c. Subvention Demonstration Site Beneficiaries Grouped by Age (XDEMOSTE)

To assist in the production of the tables and charts for the Subvention Report, the variable XDEMOSTE was constructed so that we can group by age category each subvention area and also the remainder of the domestic MHS. XDEMOSTE has 16 possible values:

1 = San Antonio, age 65 and older

2 = San Antonio, age 18-64

3 = Texas/Oklahoma, age 65 and older

4 = Texas/Oklahoma, age 18-64

5 = Colorado Springs, age 65 and older

6 = Colorado Springs, age 18-64

7 = Keesler AFB, age 65 and older

8 = Keesler AFB, age 18-64

9 = San Diego, age 65 and older

10 = San Diego, age 18-64

11 = Fort Lewis, age 65 and older

12 = Fort Lewis, age 18-64

13 = Dover AFB, age 65 and older

14 = Dover AFB, age 18-64

15 = Remainder of domestic MHS, age 65 and older

16 = Remainder of domestic MHS, age 18-64

. = All other respondents

```
/* XDEMOSTE--BENEFICIARIES BY DEMO SITE --- revised July 7, 1999 */
/* Combine Lackland AFB and Fort Sam Houston into San Antonio    */
/* Combine Fort Sill and Sheppard AFB into TexOma                */
/* Combine USAF Academy and Fort Carson into Colorado Springs    */
   IF          SRAGE_R >=65 AND CACSMPL IN ( 109, 117) THEN XDEMOSTE= 1;
   ELSE IF 18 <= SRAGE_R < 65 AND CACSMPL IN ( 109, 117) THEN XDEMOSTE= 2;
   ELSE IF     SRAGE_R >=65 AND CACSMPL IN (  98, 113) THEN XDEMOSTE= 3;
   ELSE IF 18 <= SRAGE_R < 65 AND CACSMPL IN (  98, 113) THEN XDEMOSTE= 4;
   ELSE IF     SRAGE_R >=65 AND CACSMPL IN (  33,  32) THEN XDEMOSTE= 5;
   ELSE IF 18 <= SRAGE_R < 65 AND CACSMPL IN (  33,  32) THEN XDEMOSTE= 6;
   ELSE IF     SRAGE_R >=65 AND CACSMPL= 0073        THEN XDEMOSTE= 7;
   ELSE IF 18 <= SRAGE_R < 65 AND CACSMPL= 0073        THEN XDEMOSTE= 8;
   ELSE IF     SRAGE_R >=65 AND CACSMPL= 0029        THEN XDEMOSTE= 9;
   ELSE IF 18 <= SRAGE_R < 65 AND CACSMPL= 0029        THEN XDEMOSTE=10;
   ELSE IF     SRAGE_R >=65 AND CACSMPL= 0125        THEN XDEMOSTE=11;
   ELSE IF 18 <= SRAGE_R < 65 AND CACSMPL= 0125        THEN XDEMOSTE=12;
   ELSE IF     SRAGE_R >=65 AND CACSMPL= 0036        THEN XDEMOSTE=13;
   ELSE IF 18 <= SRAGE_R < 65 AND CACSMPL= 0036        THEN XDEMOSTE=14;
   /* balance domestic MHS age 65 and over */
   ELSE IF     SRAGE_R >=65 AND
            (XREGION NOT IN (13, 14, 15, .))       THEN XDEMOSTE=15;
   /* balance domestic MHS under age 65 */
   ELSE IF 18 <= SRAGE_R < 65 AND
            (XREGION NOT IN (13, 14, 15, .))       THEN XDEMOSTE=16;
   /*  ALL OTHER RESPONDENTS  */
   ELSE XDEMOSTE=.;
```

d. Post-Secondary Education (DEDUC)

The binary variable, DEDUC, indicates whether or not a respondent has some post-secondary education:

1 = Some post-secondary education

2 = No post-secondary education

. = Education unknown

```
/* DEDUC--POST SECONDARY EDUCATION */
```

```
IF SREDD =1 THEN DEDUC = 1;  /* YES */
  ELSE IF SREDE =1 THEN DEDUC = 1;  /* YES */
  ELSE IF SREDF =1 THEN DEDUC = 1;  /* YES */
  ELSE IF SREDA =1 THEN DEDUC = 2;  /*NO */
  ELSE IF SREDB =1 THEN DEDUC = 2;  /*NO */
  ELSE IF SREDC =1 THEN DEDUC = 2; /*NO */
```

e. Age 65 or older (DAGE)

DAGE is a binary variable that groups respondents into those who are under age 65 and those who are age 65 or older:

1 = Age 65 and older

2 = Age 18 to 64

. = Age unknown

```
/* DAGE --AGE 65 AND OVER */
  IF SRAGE_R >=65 THEN DAGE=1 ;/* YES */
    ELSE IF 18<= SRAGE_R < 65 THEN DAGE=2 ;  /* NO  */
```

f. Income (DINCOM1)

The binary variable DINCOM1 allows us to group respondents by their annual income. DINCOM1 recodes income to a binary variable that flags those with an annual income less than $20,000:

1 = Income less than $20,000

2 = Income of $20,000 or more

. = Income unknown

```
/* DINCOM1-- ANNUAL INCOME LESS THAN $20,000 */
  IF H98113 = 1 THEN DINCOM1 = 1; /* YES */
    ELSE IF H98113 IN (2,3,4,5) THEN DINCOM1 = 2 ;  /* NO */
```

g. Beneficiary Group (XBNFGRP)

For reporting purposes, a person is considered enrolled in TRICARE Prime if their age is below 65 years; for consistency we redefined beneficiary groups to exclude active duty personnel and active duty family members who are age 65 or older. The variable XBNFGRP reconstructs beneficiary groups into the following values:

1 = Active Duty, under 65

2 = Family members of active duty, under 65

3 = Retirees, survivors, and family members, under 65

4 = Retirees, survivors, and family members, 65 or over

.= Unknown/other

```
/* XBNFGRP-Beneficiary Group that excludes those 65 and over-Active Duty
```

```
        and Family Members of Active Duty */
   IF SRAGE_R >= 65 AND BFGROUPP IN (1,2) THEN XBNFGRP = .;
   ELSE XBNFGRP = BFGROUPP;
```

2. TRICARE Prime Enrollment and Insurance Coverage

a. TRICARE Prime Enrollment Status (XENRLLMT)

For reporting purposes, a person is considered enrolled in TRICARE Prime if they are under 65 and the poststratification enrollment type (ENLSMPLP), based on DEERS data, indicates that they were enrolled at the time of data collection. Because it is important to view the experiences of active duty personnel separately from other enrollees, there is a separate category for active duty (under 65) — they are automatically enrolled in Prime. The four categories for TRICARE Prime enrollment are as follows:

1 = Active duty, under 65

2 = Other enrollees, under 65

3 = Not enrolled in TRICARE Prime, under 65

4 = Not enrolled in TRICARE Prime, 65 or over

. = Unknown

```
/* XENRLLMT--ENROLLMENT STATUS */
IF 18 <= SRAGE_R < 65 THEN DO;
  IF BFGROUPP = 1 THEN XENRLLMT = 1;          /*  Active duty (<65) */
  ELSE IF ENLSMPLP IN ( 1, 2)THEN XENRLLMT = 2;  /*  Non-active duty enrolled (<65)*/
  ELSE IF ENLSMPLP =3 THEN XENRLLMT = 3;      /*  Not Enrolled (<65)*/
END;
ELSE IF SRAGE_R > = 65
              AND ENLSMPLP = 3 THEN XENRLLMT = 4;        /*  Not Enrolled (65+)*/
```

b. TRICARE Prime Enrollment Status by Primary Care Manager (XENR_PCM)

This variable, similar to the previous variable XENRLLMT, separates the 'other enrollees' category into those with a military primary care manager (PCM) and those with a civilian PCM. Active duty personnel are automatically enrolled and always have a military PCM. XENR_PCM has five possible values:

1 = Active duty, under 65, military PCM

2 = Other enrollees, under 65, military PCM

3 = Other enrollees, under 65, civilian PCM

4 = Not enrolled in TRICARE Prime, under 65

5 = Not enrolled in TRICARE Prime, 65 or over

. = Unknown

```
/* XENR_PCM--ENROLLMENT BY PCM TYPE */
IF 18 <= SRAGE_R < 65 THEN DO;
 IF BFGROUPP = 1 THEN XENR_PCM = 1;      /*  Active duty (<65)      */
 ELSE IF ENLSMPLP = 1 THEN XENR_PCM = 2;  /*  Enrolled (<65) - mil PCM */
```

```
 ELSE IF ENLSMPLP = 2 THEN XENR_PCM = 3;   /*   Enrolled (<65) - civ PCM */
 ELSE IF ENLSMPLP =3  THEN XENR_PCM = 4;   /*   Not Enrolled (<65)       */
END;

 ELSE IF SRAGE_R > = 65
 AND ENLSMPLP = 3 THEN XENR_PCM = 5;       /*  Not Enrolled (65+)       */
```

c. TRICARE Prime Enrollment Status by PCM from Questionnaire Responses (XQENROLL)

The variable XQENROLL is analogous to the previous variable XENR_PCM but rather than using the DEERS information to determine enrollment, the responses to Questions 35, 36, and 38 are used to determine the status of the respondent according to the following categories:

1 = Active duty, under 65, military PCM

2 = Other enrollees, under 65, military PCM

3 = Other enrollees, under 65, civilian PCM

4- = Not enrolled in TRICARE Prime, under 65

5 = Not enrolled in TRICARE Prime, 65 or over

. = Unknown

If a respondent is unsure about their PCM, a default value comes from the poststratification variable (ENLSMPLP).

```
/* XQENROLL--ENROLLMENT ACCORDING TO QUESTIONNAIRE RESPONSES */
  IF H98035_R = 1 AND 18 <= SRAGE_R < 65 THEN XQENROLL = 1; /* Active Duty (<65)*/
  ELSE IF H98035_R = 2 THEN DO;       /* Non-Active Duty */
     IF 18 <= SRAGE_R < 65 AND H98036_R = 1 THEN DO;
       IF H98038_R = 1 THEN XQENROLL = 2;    /*  Enrolled (<65) - mil PCM */
       ELSE IF H98038_R = 2 THEN XQENROLL = 3;/* Enrolled (<65) - civ PCM */


/* for unsure, default to DEERS sampling values   */
       ELSE IF H98038_R = 3 THEN DO;
         IF ENLSMPLP = 1 THEN XQENROLL = 2;   /* Enrolled (<65) - Mil PCM */
         ELSE IF ENLSMPLP = 2 THEN XQENROLL = 3;/* Enrolled (<65) - Civ PCM */
       END;
     END;
     ELSE IF H98036_R = 2 THEN DO;
      IF 18 <= SRAGE_R < 65 THEN XQENROLL = 4;     /* Not enrolled (<65)   */
      ELSE IF SRAGE_R >= 65 THEN XQENROLL = 5; /* Not enrolled (>=65) */
     END;
  END;
```

d. Most–Used Health Plan (XINS_COV)

The respondent's most–used health plan comes directly from Question 50 (unless the respondent is active duty) and the respondent's age. For reporting purposes, we are only considering those persons under 65 to be enrolled in Prime. All active duty personnel are automatically enrolled in Prime. The five categories for this variable are as follows:

1 = Active duty, under 65

2 = Other TRICARE Prime enrollees, under 65

3 = TRICARE Standard/Extra (CHAMPUS)

4- = Medicare Part A and/or Part B

5 = Other civilian health insurance or civilian HMO

. = Unknown

```
/* XINS_COV--INSURANCE COVERAGE */
 IF XENRLLMT = 1 THEN XINS_COV =1; /* Prime <65-Active Duty */
  ELSE IF 18 <= SRAGE_R < 65 AND H98050 IN (1,2)
                    THEN XINS_COV = 2; /* Prime <65-Non-active Duty */
  ELSE IF H98050 = 3 THEN XINS_COV = 3;    /* Standard/Extra */
  ELSE IF H98050 = 4 THEN XINS_COV = 4;    /* Medicare */
  ELSE IF H98050 = 5 THEN XINS_COV = 5;    /* Other Insurance */
```

e. Types of Coverage (KCIVINS, KMEDIGAP)

Two binary variables were created to indicate the types of insurance that respondents use:

- Is the respondent covered by Civilian insurance (KCIVINS)
- Is the respondent covered by Medigap or other supplemental insurance (KMEDIGAP)

These variables have the following values:

1 = Yes

2 = No

.= Unknown

```
****Is beneficiary covered by civilian insurance****;
IF H98047A = 1 OR H98047B = 1 OR H98047C  = 1 THEN KCIVINS = 1; /* YES */
ELSE KCIVINS = 2;  /* NO */

***Is beneficiary covered by Medigap or other supplemental insurance****;
IF H98045BR = 1 OR H98045CR = 1 THEN KMEDIGAP = 1;  /* YES */
ELSE IF H98045BR =2 AND H98045CR = 2 THEN KMEDIGAP = 2;    /* NO */
```

f. Out-of-Pocket Costs (KCOST_2)

A binary variable (KCOST_2) was created to indicate those respondents whose out-of-pocket costs for medical care and medical insurance was over $200.

1 = Out-of-pocket costs over $200

2 = Out-of-pocket costs not over $200

3 = Out-of-pocket costs unknown

```
/* KCOST_2--OUT-OF-POCKET COSTS GREATER THAN $200 */
IF H98049BR > 200 THEN KCOST_2=1;   /* YES */
    ELSE IF 0 <= H98049BR <=  200 THEN KCOST_2=2;  /* NO  */
```

3. Satisfaction Measures

a. Satisfaction with Military and/or Civilian Health Care (KMIL98, KCIV98)

There are two versions of questions on satisfaction with care: traditional HCSDB questions (Section VIII) and new CAHPS-based questions (Section VII).

Section VIII of the questionnaire deals with beneficiaries' satisfaction with the health care they receive at military and civilian facilities using the traditional HCSDB questions. Questions 97 and 101 (use of care in the last 12 months) determine if the beneficiary should complete satisfaction questions (99a, 99b, and 100a to 100s for military care; 103a, 103b, and 104a to 104s for civilian care). Therefore, only those beneficiaries reporting use of health care in the last 12 months have satisfaction scores formed for that type of health care (civilian or military). The degree of satisfaction that beneficiaries feel about their health care is measured in a number of ways. The primary measures for military care are questions 99a (overall satisfaction), 100a-s (19 questions about specific aspects of health care), and 99b (likelihood of recommending military care). The corresponding questions on civilian health care are 103a, 104a-s, and 103b.

In the tables and charts we report only on overall satisfaction, grouping the respondents into two categories:

1 = Those who agree or strongly agree that they are satisfied with their health care

2 = Those who neither agree or disagree, disagree, or strongly disagree that they are satisfied with their health care

```
/* KMIL98--SATISFIED WITH MILITARY CARE */
  IF H98099A IN (4, 5) THEN KMIL98 = 1;          /*  Yes  */
    ELSE IF H98099A IN (1, 2, 3) THEN KMIL98 = 2;  /*  No  */

/* KCIV98--SATISFIED WITH CIVILIAN CARE */
  IF H98103A IN (4, 5) THEN KCIV98 = 1;          /* Yes */
    ELSE IF H98103A IN (1, 2, 3) THEN KCIV98 = 2;  /* No  */
```

b. Enrollment Intentions (KENRINTN, KDISENRL)

Active duty personnel are not asked the questions on enrollment intentions. If a non-active duty respondent is not currently enrolled in TRICARE Prime, he or she is asked about his or her intention to enroll (Question 39). Similarly, if a non-active duty respondent is enrolled in TRICARE Prime, he or she is asked about the likelihood of disenrolling (Question 37). A binary variable is created to group the responses to the enrollment questions into these categories:

1 = response of likely or very likely

2 = all other valid responses

. = missing response

```
/* KENRINTN--INTENTION TO ENROLL */
  IF H98039_R IN (4, 5) THEN KENRINTN = 1;          /* Yes */
```

```
    ELSE IF H98039_R IN (1, 2, 3, 6) THEN KENRINTN = 2;    /* No  */


/* KDISENRL--INTENTION TO DISNEROLL */
  IF H98037_R IN (4, 5) THEN KDISENRL = 1;                 /* Yes */
    ELSE IF H98037_R IN (1, 2, 3, 6) THEN KDISENRL = 2;    /* No  */
```

4. Knowledge of TRICARE (KNOWLG98)

Question 32 asks about the respondent's understanding of TRICARE; the responses to this question are regrouped into the binary variable KNOWLG98. KNOWLG98 looks at these two categories:

1 = Those with no understanding

2 = Those with at least a little understanding

.= Missing response

```
/* KNOWLG98--TRICARE KNOWLEDGE */
  IF H98032 = 1 THEN KNOWLG98 = 1;                 /*  None */
    ELSE IF H98032 IN (2, 3, 4) THEN KNOWLG98 = 2; /*  Some  */
```

5. Access to Care (KMILWAT1, KCIVWAT1, KMILOFFC, KCIVOFFC, KBGPRB1, KBGPRB2)

Many of the survey questions on access relate directly to a TRICARE performance standard. The questions in Section VI of the questionnaire are answered only for the respondent's most-used facility. For these questions (75-83), we constructed binary variables, separately for military and civilian facilities, indicating whether the TRICARE standard was met. Table 3.5 presents those standards that were analyzed in the reports. The new variables have the following values:

1 = Standard was met

2 = Standard was not met

.= Missing information

TABLE 3.5

TRICARE STANDARDS FOR ACCESS

Access Measure	TRICARE Standard	Variable Name	Relevant Question
Wait for a Well Visit	Less than 4 weeks	KMILWATI, KCIVWATI	77a
Waiting Room Wait	Within 30 minutes	KMILOFFC, KCIVOFFC	83

```
/* KMILWAT1--WAIT LESS THAN 4 WEEKS FOR WELL PATIENT VISIT AT MIL FACILITIES
KCIVWAT1--WAIT LESS THAN 4 WEEKS FOR WELL PATIENT VISIT AT CIV FACILITIES*/
  IF H98074_R = 1 THEN DO;      /* Military */
    IF H98077A IN (1, 2) THEN KMILWAT1 = 1;   /*  Yes */
    ELSE IF H98077A =  3 THEN KMILWAT1 = 2;   /*  No  */
  END;
    ELSE IF H98074_R = 2 THEN DO;   /*  Civilian */
       IF H98077A IN (1, 2) THEN KCIVWAT1 = 1;   /*  Yes */
       ELSE IF H98077A =  3 THEN KCIVWAT1 = 2;   /*  No  */
    END;

/* KMILOFFC--OFFICE WAIT OF 30 MINUTES OR MORE AT MILITARY FACILITES
  KCIVOFFC--OFFICE WAIT OF 30 MINUTES OR MORE AT CIVILIAN FACILITES */
  IF H98074_R = 1 THEN DO;      /* Military */
    IF H98083 IN (3,4) THEN KMILOFFC = 1;             /*  Yes */
    ELSE IF H98083 IN (1,2) THEN KMILOFFC = 2;        /*  No  */
  END;
    ELSE IF H98074_R = 2 THEN DO;   /*  Civilian */
       IF H98083 IN (3,4) THEN KCIVOFFC = 1;          /* Yes */
       ELSE IF H98083 IN (1,2) THEN KCIVOFFC = 2;     /* No */
    END;
```

Question 54 asks how much of a problem, if any, it was to get a referral to a specialist. The responses to this question are regrouped by a binary variable KBGPRB1. KBGPRB1 looks at these two categories:

1 = Those who reported a “big problem”

2 = Those who reported not a “big problem”

. = Missing response

```
/* KBGPRB1--BIG PROBLEM GETTING REFERRALS TO SPECIALISTS */
  IF H98054 =1 THEN KBGPRB1 =1;                  /* YES */
     ELSE IF H98054 IN (2,3) THEN KBGPRB1 =2;        /* NO  */
```

Similarly, variable KBGPRB2 was constructed. Question 59 asks about how much of a problem, if any, it was to get the care you or a doctor believed necessary. The responses to this question are regrouped by a binary variable KBGPRB2. KBGPRB2 looks at these two categories:

1 = Those who reported a “big problem”

2 = Those who reported not a “big problem”

. = Missing response

```
/* KBGPRB2--BIG PROBLEM GETTING NECESSARY CARE */
  IF H98059 =1 THEN KBGPRB2 =1;                    /* YES */
     ELSE IF H98059 IN (2,3) THEN KBGPRB2 =2;      /* NO  */
```

6. Health Status (SF12PCS, SF12MCS, KMID_H, KMID_MH)

Results for health status are reported in summary measure format using the system provided in the manual "SF-12: How to Score the SF-12 Physical & Mental Health Summary Scales" (Ware, Kosinski, and Keller 1995). The Health Institute granted OASD (HA) permission to use the SF-12 Physical and Mental Health Summary Scales derived from the 36-item Health Survey 1.0[4] originally developed as part of the Medical Outcomes Study. Section IX of the questionnaire, entitled "Your Health," contains the SF-12 questions. The first 12 questions in this section can be used to construct two health summary measures, the summary physical and mental health measures. The corresponding questions appear in Table III.5. The last question of this section of the questionnaire seeks information on the number of days missed from work due to illness or injury, this is a stand-alone item not used in scale or summary measure construction.

In the SF-12 approach, all 12 items are used with two sets of weights, one for physical health and one for mental health.

In order to create consistent coding to reflect a higher value for better health, some responses were recoded as shown in Table 3.6:

TABLE 3.6

QUESTIONNAIRE RECODES FOR SF-12 CALCULATION

Response Option	Original Coded Value	Recoded Value
All of the time	6	1
Most of the time	5	2
A good bit of the time	4	3
Some of the time	3	4
A little of the time	2	5
None of the time	1	6
No response	.	.
Multiple response error	.A	.

The calculation of the physical health summary measure and the mental health summary measure are presented in Table 3.7. In this table, the indicator variables are binary variables set to 1 if the condition is true and to 0 if the condition is not true.

[4]The 1998 questionnaire includes the SF-12 Health Survey, item numbers 1 to 8, reproduced with permission of the Medical Outcomes Trust, copyright© 1994 The Health Institute; New England Medical Center.

TABLE 3.7

WEIGHTING COEFFICIENTS FOR CALCULATING PHYSICAL AND MENTAL HEALTH SUMMARY MEASURES

Variable	Item Response Choice(s)	H98 Value	Reverse Score	Indicator Variable	Physical Weight	Mental Health
H98106A	Moderate activities (PF02)					
	Limited a lot	3	1	PF02_1	-7.23216	3.93115
	Limited a little	2	2	PF02_2	-3.45555	1.86840
	No, not limited at all	1	3		0.00000	0.00000
H98106B	Climbing several flights of stairs (PF04)					
	Limited a lot	3	1	PF04_1	-6.24397	2.68282
	Limited a little	2	2	PF04_2	-2.73557	1.43103
	No, not limited at all	1	3		0.00000	0.00000
H98107A	Accomplish less than you would like (RP2)					
	Yes	1		RP2_1	-4.61617	1.44060
	No	2			0.00000	0.00000
H98107B	Limited in the kind of activities (RP3)					
	Yes	1		RP3_1	-5.51747	1.66968
	No	2			0.00000	0.00000
H98109	Pain interferes with normal work (BP2)					
	Extremely	5	1	BP2_1	-11.25544	1.48619
	Quite a bit	4	2	BP2_2	-8.38063	1.76691
	Moderately	3	3	BP2_3	-6.50522	1.49384
	A little bit	2	4	BP2_4	-3.80130	0.90384
	Not at all	1	5		0.00000	0.00000
HH98105	In general, would you say your health is (GH1)	1		GH1_1	-8.37399	-1.71175
	Poor	2		GH1_2	-5.56461	-0.16891
	Fair	3		GH1_3	-3.02396	0.03482
	Good	4		GH1_4	-1.31872	-0.06064
	Very good	5			0.00000	**0.00000**
	Excellent					
H98110B	Have a lot of energy (VT2)					
	None of the time	1		VT2_1	-2.44706	-6.02409
	A little of the time	2		VT2_2	-2.02168	-4.88962
	Some of the time	3		VT2_3	-1.61850	-3.29805
	A good bit of the time	4		VT2_4	-1.14387	-1.65178
	Most of the time	5		VT2_5	-0.42251	-0.92057
	All of the time	6			0.00000	0.00000
H98111	Health interferes w/social activities (SF2)*					
	All of the time	6[a]	1	SF2_1	-0.33682	-6.29724
	Most of the time	5	2	SF2_2	-0.94342	-8.26066
	A good bit of the time or some of the time	4, 3	3	SF2_3	-0.18043	-5.63286
	A little of the time	2	4	SF2_4	0.11038	-3.13896
	None of the time	1	5		0.00000	0.00000

Variable	Item Response Choice(s)	H98 Value	Reverse Score	Indicator Variable	Physical Weight	Mental Health
H98108A	Accomplish less than you would like (RE2)					
	Yes	1		RE2_1	3.04365	-6.82672
	No	2			0.00000	0.00000
H98108B	Didn't do activities as carefully as usual (RE3)					
	Yes	1		RE3_1	2.32091	-5.69921
	No	2			0.00000	0.00000
H98110A	Felt calm and peaceful (MH3)					
	None of the time	1		MH3_1	3.46638	-10.19085
	A little of the time	2		MH3_2	2.90426	-7.92717
	Some of the time	3		MH3_3	2.37241	-6.31121
	A good bit of the time	4		MH3_4	1.36689	-4.09842
	Most of the time	5		MH3_5	0.66514	-1.94949
	All of the time	6			0.00000	0.00000
H98110C	Felt downhearted and blue (MH4)					
	All of the time	6	1	MH4_1	4.61446	-16.15395
	Most of the time	5	2	MH4_2	3.41593	-10.77911
	A good bit of the time	4	3	MH4_3	2.34247	-8.09914
	Some of the time	3	4	MH4_4	1.28044	-4.59055
	A little of the time	2	5	MH4_5	0.41188	-1.95934
	None of the time	1	6		0.00000	0.00000
	Constant				56.57706	60.75781

[a]These values represent annotated questionnaire values rather than recoded values as shown in the 1997 Technical Manual.

* The response choice "A good bit of the time" was combined with "some of the time" in order to accurately use the SF12 Physical and Mental Health Summary Measured Weights.

The complete SAS code to develop the values SF12PCS and SF12MCS appears in Appendix K-9. The development of the indicator variables can be deduced from Table 3.7; the final equations to create SF12PCS and SF12MCS are shown below:

```
/*************************************************************************
WEIGHTING AND AGGREGATION OF INDICATOR VARIABLES USINGPHYSICAL AND MENTAL
REGRESSION    WEIGHTS.AWPCS12    &    RAWMCS12    ARE    TEMPORARY    VARIABLES
*************************************************************************/
  RAWPCS12 = (-7.23216*PF02_1) + (-3.45555*PF02_2) +
      (-6.24397*PF04_1) + (-2.7357*PF04_2) + (-4.61617*RP2_1) +
      (-5.51747*RP3_1) + (-11.25544*BP2_1) + (-8.38063*BP2_2) +
      (-6.50522*BP2_3) + (-3.80130*BP2_4) + (-8.37399*GH1_1) +
      (-5.56461*GH1_2) + (-3.02396*GH1_3) + (-1.31872*GH1_4) +
      (-2.44706*VT2_1) + (-2.02168*VT2_2) + (-1.6185*VT2_3)  +
      (-1.14387*VT2_4) + (-0.42251*VT2_5) + (-0.33682*SF2_1) +
      (-0.94342*SF2_2) + (-0.18043*SF2_3) + (0.11038*SF2_4)  +
      (3.04365*RE2_1) + (2.32091*RE3_1)  + (3.46638*MH3_1) +
      (2.90426*MH3_2) + (2.37241*MH3_3)  + (1.36689*MH3_4) +
      (0.66514*MH3_5) + (4.61446*MH4_1)  + (3.41593*MH4_2) +
      (2.34247*MH4_3) + (1.28044*MH4_4)  + (0.41188*MH4_5);
  RAWMCS12 = (3.93115*PF02_1) + (1.8684*PF02_2) +
```

```
      (2.68282*PF04_1) + (1.43103*PF04_2) + (1.4406*RP2_1)  +
      (1.66968*RP3_1)  + (1.48619*BP2_1)  +  (1.76691*BP2_2)  +
      (1.49384*BP2_3)  + (0.90384*BP2_4)  +  (-1.71175*GH1_1) +
      (-0.16891*GH1_2) + (0.03482*GH1_3)  +  (-0.06064*GH1_4) +
      (-6.02409*VT2_1) + (-4.88962*VT2_2) +  (-3.29805*VT2_3) +
      (-1.65178*VT2_4) + (-0.92057*VT2_5) +  (-6.29724*SF2_1) +
      (-8.26066*SF2_2) + (-5.63286*SF2_3) +  (-3.13896*SF2_4) +
      (-6.82672*RE2_1) + (-5.69921*RE3_1) +  (-10.19085*MH3_1) +
      (-7.92717*MH3_2) + (-6.31121*MH3_3) +  (-4.09842*MH3_4) +
      (-1.94949*MH3_5) + (-16.15395*MH4_1) +  (-10.77911*MH4_2) +
      (-8.09914*MH4_3) + (-4.59055*MH4_4) + (-1.95934*MH4_5);


/*************************************************************
            NORM-BASED STANDARDIZATION OF SCALE SCORES
*************************************************************/
  SF12PCS = RAWPCS12 + 56.57706;
  SF12MCS = RAWMCS12 + 60.75781;
```

Many of the reports show the percentage of respondents whose health status measures fall below the national median after adjustments for age (KMID_H, KMID_MH). These are binary variables where a value of 1 indicates that the condition is true and a value of 2 indicates that the condition is false.

```
****BELOW MEDIAN PHYSICAL HEALTH****;
IF SRAGE < 18 OR SF12PCS = . THEN KMID_H = .;
ELSE IF 18 <= SRAGE <= 34 AND SF12PCS < 55.18 THEN KMID_H = 1;
ELSE IF 35 <= SRAGE <= 44 AND SF12PCS < 54.30 THEN KMID_H = 1;
ELSE IF 45 <= SRAGE <= 54 AND SF12PCS < 52.76 THEN KMID_H = 1;
ELSE IF 55 <= SRAGE <= 64 AND SF12PCS < 50.22 THEN KMID_H = 1;
ELSE IF 65 <= SRAGE <= 74 AND SF12PCS < 46.36 THEN KMID_H = 1;
ELSE IF SRAGE >= 75 AND SF12PCS < 38.68 THEN KMID_H = 1;
ELSE KMID_H = 2;


****BELOW MEDIAN MENTAL HEALTH****;
IF SRAGE < 18 OR SF12MCS = . THEN KMID_MH = .;
ELSE IF 18 <= SRAGE <= 34 AND SF12MCS < 51.81 THEN KMID_MH = 1;
ELSE IF 35 <= SRAGE <= 44 AND SF12MCS < 52.24 THEN KMID_MH = 1;
ELSE IF 45 <= SRAGE <= 54 AND SF12MCS < 53.30 THEN KMID_MH = 1;
ELSE IF 55 <= SRAGE <= 64 AND SF12MCS < 53.14 THEN KMID_MH = 1;
ELSE IF 65 <= SRAGE <= 74 AND SF12MCS < 55.31 THEN KMID_MH = 1;
ELSE IF SRAGE >= 75 AND SF12MCS < 53.53 THEN KMID_MH = 1;
ELSE KMID_MH = 2;
```

7. Preventive Care (HP_PRNTL, HP_MAMOG, HP_PAP, HP_BP, HP_FLU, HP_PROS)

As in some of the access analyses, preventive care analyses incorporated either a TRICARE standard or a federal Healthy People 2000 objective. We constructed new binary variables from the responses to indicate whether the respondent received the preventive care service within the recommended time period. See Table 3.8 for the list of the variables developed for analysis of preventive care; these variables will be compared to the TRICARE standard or Healthy People 2000 Goal. The new variables have the following values:

1 = Received service within the recommended time period

2 = Did not received service within the recommended time period

.= Missing information

```
/* HP_PRNTL--IF PREGNANT LAST YEAR, RECEIVED PRENATAL CARE IN 1ST TRIMESTER
*/
  IF H98030_R = 1 THEN DO;      /*   Pregnant in last 12 months   */
    IF H98031_R = 7 THEN HP_PRNTL = 1;          /*   Yes   */
      ELSE IF H98031_R = 4 THEN HP_PRNTL = .;    /* <3 months pregnant now */
      ELSE IF H98031_R IN (1, 2, 3, 5, 6) THEN HP_PRNTL = 2;   /*   No */
  END;

/* HP_MAMOG--FOR WOMEN AGE 50 AND OVER, HAD MAMMOGRAM W/IN PAST 2 YEARS
*/
  IF XSEXA = 2 AND SRAGE_R >= 50 THEN DO;
    IF H98029B IN (5, 4) THEN HP_MAMOG = 1;          /* Yes */
    ELSE IF H98029B IN (1, 2, 3) THEN HP_MAMOG = 2;    /* No */
  END;
/* HP_PAP--FOR ALL WOMEN, HAD PAP SMEAR IN LAST 3 YEARS */
  IF XSEXA = 2 THEN DO;
    IF H98028_R IN (4, 5) THEN HP_PAP = 1;          /* Yes */
    ELSE IF H98028_R IN (1, 2, 3) THEN HP_PAP = 2;    /* No  */
  END;

/* HP_BP--HAD BLOOD PRESSURE SCREENING IN LAST 2 YEARS AND KNOW RESULT */
  IF H98017A IN (4, 5) AND H98017B IN (1, 2) THEN HP_BP = 1; /* Yes */
    ELSE IF H98017A in (1, 2, 3) THEN HP_BP = 2;        /*    No */
    ELSE IF H98017A < 0 OR H98017B < 0 THEN HP_BP = .;     /* Unknown */
    ELSE HP_BP = 2;        /*    No */

/* HP_FLU--FOR PERSON AGE 65 OR OVER, HAD FLU SHOT IN LAST 12 MONTHS */
  IF SRAGE_R >= 65 THEN DO;
    IF H98019 = 5 THEN HP_FLU = 1;                  /*   Yes */
    ELSE IF H98019 IN (1, 2, 3, 4) THEN HP_FLU = 2;    /*   No  */
  END;

/* HP_PROS--FOR MEN AGE 50 AND OVER, HAD PROSTRATE EXAM W/IN PAST 12
MONTHS */
  IF XSEXA = 1 AND SRAGE_R >= 50 THEN DO;
    IF H98027_R = 5 THEN HP_PROS = 1;                /*   Yes */
    ELSE IF H98027_R IN (1, 2, 3, 4) THEN HP_PROS = 2;   /*   No   */
  END;
```

TABLE 3.8

PREVENTIVE CARE STANDARDS

Preventive Care Received	Question Number	Variable Name	Received service in Recommended Time Period	Population Involved	Standard	Source
Blood Pressure Check	17a & 17b	HP_BP	Received blood pressure check in the past 24 months and know the results	Adult	90% within last 2 years	Healthy People 2000
Flu Shot	19	HP_FLU	Received flu shot in the past 12 months	Adults age 65 and older	60% in past year	Healthy People 2000
Pap Smear	28	HP_PAP	Received pap smear in the past 36 months	Adult females	85% in the past 36 months	Healthy People 2000
Mammography	29b	HP_MAMOG	Had a mammography in the past 24 months	Female age 50 or over	60% in the past 24 months	Healthy People 2000
Prostate Exam	27	HP_PROS	Had a prostate exam in the past 12 months	Male age 50 and over	Annual exam and PSA blood test	American Cancer Society
Prenatal Care	31	HP_PRNTL	Received prenatal care in the first trimester	Currently pregnant adult females and all adult females who were pregnant in the past 12 months, excluding those less than 3 months pregnant who haven't received care	90% had care in first trimester	Healthy People 2000

8. Utilization

a. Inpatient Utilization (KIPMIL1, KIPMIL4)

Question 2 of the questionnaire asks if the respondent received any inpatient care at a military facility while Question 3 contains the total inpatient days in military facilities.

We created two several binary variables (where 1 indicates yes and 2 indicates no) to indicate levels of inpatient usage at military facilities:

- Respondent spent one or more nights in a military facility (KIPMIL1)
- Respondent spent four or more nights in a military facility (KIPMIL4)

```
/* KIPMIL1--STAYED 1 OR MORE NIGHTS IN A MTF */
  IF H98002_R=1 THEN KIPMIL1 = 1;  /* Yes */
    ELSE IF H98002_R =2 OR H98001_R = 2 THEN KIPMIL1 = 2; /*  No */

/*KIPMIL4-- STAYED 4 OR MORE NIGHTS IN A MILITARY FACILITY */
 IF KIPMIL1 =1 THEN DO;
   IF H98003_R >=4 THEN KIPMIL4 =1; /* YES */
   ELSE KIPMIL4 =2; /* NO */
 END;
```

b. Emergency Room Use (KMILEMER, KCIVEMER, KTOTEMER)

The responses to Questions 10 and 11 give the information needed to create a binary variable (KMILEMER) that indicates if a respondent had one or more visits to a military emergency room. Similarly, we used the responses to Questions 12, 13a, and 13b to create a binary variable (KCIVEMER) that indicates if a respondent had one or more visits to a civilian emergency room. If a respondent had visits to either a civilian or military emergency room, then the binary variable (KTOTEMER) is set to 1 to indicate that the respondent had one or more emergency room visits. If the respondent had no visits to either a civilian or military emergency room, then KTOTEMER is set to 2 to indicate no emergency room visits; otherwise, KTOTEMER is set to missing.

```
/* KMILEMER--FLAG TO INDICATE 1 OR MORE EMERGENCY RM VISITS TO MIL FACILITY
  KCIVEMER--FLAG TO INDICATE 1 OR MORE EMERGENCY RM VISITS TO CIV FACILITY */
  IF H98010_R=1 AND H98011_R >=1 THEN KMILEMER = 1;  /*1 OR MORE VISITS */
     ELSE IF H98010_R=2 OR H98001_R=2 THEN KMILEMER=2 ;          /* NO VISITS */
  IF H98012_R=1 AND SUM(H98013AR, H98013BR)>=1 THEN KCIVEMER =1; /* 1 OR MORE
VISITS */
     ELSE IF H98012_R=2 OR H98001_R=2 THEN KCIVEMER=2;          /* NO VISITS */

/* KTOTEMER--FLAG TO INDICATE EITHER MIL OR CIV EMERGENCY ROOM VISITS */
  IF KMILEMER=1 OR KCIVEMER=1 THEN KTOTEMER = 1; /*1 OR MORE VISITS */
    ELSE IF KMILEMER=2 AND KCIVEMER=2 THEN KTOTEMER=2; /* NO VISITS */
```

c. Outpatient Utilization (KMILOP98, KCIVOP98, KTOTOP98, KOPMIL1, KOPMIL5)

Question 7 contains the total outpatient visits to military facilities. This is renamed to KMILOP98 and adjusted to reflect zero visits for those with no care or no care at military facilities. KCIVOP98, the total outpatient visits to civilian facilities, is the sum of the responses to question 9a and question 9b after similar adjustments for no care. KTOTOP98 is the sum of all outpatient visits to both military and civilian facilities.

```
/* KMILOP98--OUTPATIENT VISITS TO MILITARY FACILITY
  KCIVOP98--OUTPATIENT VISITS TO CIVILIAN FACILITY */
  IF H98001_R=2  OR H98006_R=2 THEN KMILOP98=0;
    ELSE KMILOP98 = H98007_R;
  IF H98001_R=2 OR H98006_R=2 THEN KCIVOP98=0;
    ELSE KCIVOP98 = SUM(H98009AR, H98009BR);

/* KTOTOP98--SUM OF ALL OUTPATIENT VISITS */
   KTOTOP98 = SUM(KMILOP98, KCIVOP98);
```

In addition, we created several binary variables (where 1 means yes and 2 means no) to indicate levels of outpatient usage at military facilities:

- Respondent had one or more outpatient visit to a military facility (KOPMIL1*)*
- Respondent had five or more outpatient visits to a military facility (KOPMIL5)

```
/*KOPMIL1-- 1 OR MORE OUTPATIENT VISITS TO MILITARY FACILITY*/
 IF H98006_R=1 THEN KOPMIL1 =1; /* YES */
   ELSE IF H98006_R =2 OR H98001_R=2 THEN KOPMIL1=2;  /* NO */

/*KOPMIL5-- 5 OR MORE OUTPATIENT VISITS TO MILITARY FACILITY*/
 IF KOPMIL1 =1 THEN DO;
   IF H98007_R >=5 THEN KOPMIL5 =1; /* YES */
   ELSE KOPMIL5=2;  /* NO */
 END;
```

d. Use of Military Pharmacies to Fill Civilian Prescriptions (KPRSCPTN, KPRESC12)

KPRSCPTN is a binary variable created to indicate if a respondent had seven or more prescriptions that were written by a civilian provider but were filled by a military pharmacy. KPRESC12 is a binary variable created to indicate if a respondent had 12 or more prescriptions that were written by a civilian provider but were filled by a military pharmacy.

```
/* KPRSCPTN--7 OR MORE CIVILIAN PRESCRIPTIONS FILLED BY MILITARY PHARMACY */
  IF H98014 IN (3,4) THEN KPRSCPTN = 1; /* YES */
    ELSE IF H98014 IN (1,2) OR H98001_R=2 THEN KPRSCPTN =2; /* NO */
/*KPRESC12--HAVE 12 OR MORE CIVILIAN PRESCRIPTIONS FILLED AT MIL PHARMACY*/
 IF H98014 =4 THEN KPRESC12 =1;   /* YES */
   ELSE IF H98014 IN (1,2,3) OR H98001_R=2 THEN KPRESC12 =2; /* NO  */
```

9. Trend Variables

In the 1998 reports, trends are reported for certain topics using the HCSDB for 1997 and for 1996. These trend variables are not part of the HCSDB for 1998, but are retained in temporary files created specifically for report production. Table 3.9 lists these trend variables that appear as dependent variables in the reports. The independent variables have been constructed with names and definitions consistent with the comparable 1998 variables. All SAS code for the trend variables is found in Appendix K-8, the CONSVAR2.SAS program.

TABLE 3.9

TREND VARIABLES FOR REPORTS

Variable	Content/Topic
KMIL97	Satisfied with military care, coded in binary form 1 / 2 — Trend variable from 1997
KCIV97	Satisfied with civilian care, coded in binary form 1 / 2 — Trend variable from 1997
KNOWLG97	TRICARE knowledge, coded in binary form 1 / 2 — Trend variable from 1997
KMILOP97	Outpatient visits to military facility — Trend variable from 1997
KCIVOP97	Outpatient visits to civilian facility — Trend variable from 1997
KTOTOP97	Total outpatient visits — Trend variable from 1997
KMIL96	Satisfied with military care, coded in binary form 1 / 2 — Trend variable from 1996
KCIV96	Satisfied with civilian care, coded in binary form 1 / 2 — Trend variable from 1996
KMILOP96	Outpatient visits to military facility — Trend variable from 1996
KTOTOP96	Total outpatient visits — Trend variable from 1996

E. WEIGHTING PROCEDURES

Estimates based on the 1998 HCSDB must account for the survey's complex sample design and for the biasing effects that nonresponse can have. As a part of sample selection, MPR constructed sampling weights (BWT98) that reflect the differential selection probabilities used to sample beneficiaries across strata. Nonresponse can also lead to distortions of the respondent sample with respect to the total population of DoD health care beneficiaries. Adjustments were made to these sampling weights, BWT98, to compensate for such distortions, using a weighting class method. These adjusted weights were also adjusted through the poststratification procedure to form the analysis weights, which we included in the final deliverable database. We also generated replicate weights for the final database so that users have the option of obtaining variance estimates with a replication method as well as the Taylor series method that we used for the 1998 analysis. This section presents these weighting procedures for the 1998 HCSDB.

1. Constructing the Sampling Weight

The sampling weight was constructed on the basis of the sample design. In the 1998 HCSDB, stratified sampling was used to select the samples that would receive the questionnaire. Sampling for Form A administration was independently executed within strata defined by combinations of the three domains: enrollment status groups; beneficiary groups; and geographic areas.

The sample was selected with differential probabilities of selection across strata. Sample sizes were driven by predetermined precision requirements. For further details of the 1998 sample design, see Jang et al. (1998). Our first step in weighting was to construct sampling weights that reflect these unequal sampling rates. These sampling weights can be viewed as the number of population elements that each sampled beneficiary represents. The sampling weight was defined as the inverse of the beneficiary's selection probability or:

(1) $$W_s(h,i) = \frac{N(h)}{n(h)}$$

where:

$W_s(h,i)$ is the sampling weight for the i-th sampled beneficiary within the h-th stratum,

$N(h)$ is the total number of beneficiaries in the h-th stratum, and
$n(h)$ is the number of sampled beneficiaries from stratum h.

The sum of the sampling weights over selections from the h-th stratum equals the total population size of the h-th stratum or $N(h)$.

2. Adjustment for Total Nonresponse

Survey estimates obtained from respondent data only can be biased with respect to describing characteristics of the total population (Lessler and Kalsbeek 1992). To reduce this bias, we developed procedures to deal with the problems caused by nonresponse. Two types of nonresponse were associated with the 1998 HCSDB:

- Unit *or* total nonresponse occurs when a sampled beneficiary did not respond to the survey questionnaire (e.g., refusals, no questionnaire returned, blank questionnaire returned, bad address).

- Item nonresponse occurs when a question that should have been answered is not answered (e.g., refusal to answer, no response).

With high item response rates observed in previous surveys, statistical imputation was not used to compensate for item nonresponse in the 1998 HCSDB. To account for total nonresponse, we implemented a weighting class adjustment followed by a poststratification adjustment.

3. Weighting Class Adjustment

Weighting class adjustments were made by partitioning the sample into groups, called *weighting classes*, and then adjusting the weights of respondents within each class so that they sum to the weight total for nonrespondents and respondents from that class. Implicit in the weighting class adjustment is the assumption that — had the nonrespondents responded — their responses would have been distributed in the same way as the responses of the other respondents in their class.

The 1998 HCSDB weighting classes were defined on the basis of the stratification variables: TRICARE Prime enrollment status, beneficiary group, and geographic area. To avoid excessive variance inflation, we required that each weighting class have at least 20 eligible respondents, and that the adjustment factor not exceed 4.

Nonresponse adjustment factors for the 1998 HCSDB were calculated in two steps. First, we adjusted the sampling weights to account for sampled beneficiaries for whom eligibility status could not be determined. Sampled beneficiaries were then grouped as follows according to their response status d:

d=1 Eligible — completed questionnaire returned (FNSTATUS = 11)

d=2 Eligible — incomplete or no questionnaire returned (FNSTATUS = 12 or 20)

d=3 Ineligible — deceased or institutionalized beneficiary (FNSTATUS = 30)

d=4 Eligibility unknown — no questionnaire or eligibility data (FNSTATUS = 41 or 42)

Within weighting class *c*, the weights of the *d*=4 nonrespondents with unknown eligibility were redistributed to the cases for which eligibility was known (*d*=1,2,3), using an adjustment factor $A_{wc1}(c,d)$ that was defined to be zero for *d*=4 and defined as:

$$(2)\quad A_{wc1}(c,d) = \frac{\sum_{i \in S(c)} W_s(c,i)}{\sum_{i \in S(c)} I_1(i) W_s(c,i) + \sum_{i \in S(c)} I_2(i) W_s(c,i) + \sum_{i \in S(c)} I_3 W_s(c,i)} \qquad \text{for } d = 1, 2, 3$$

where:

$A_{wc1}(c,d)$ is the eligibility-status adjustment factor for weighting class *c* and response status code *d*,

$I_d(i)$ is the indicator function that has a value of 1 if sampled unit *i* has a response status code of *d* and 0 otherwise,

$S(c)$ is the set of sample members belonging to weighting class *c*, and

$W_s(c,i)$ is the sampling weight (BWT) for the *i*-th sample beneficiary from weighting class *c* before adjustment.

The adjustment $A_{wc1}(c,d)$ was then applied to the sampling weights to obtain the eligibility-status adjusted weight. Beneficiaries in weighting class *c* with response status code of *d* were assigned the eligibility-status adjusted weight:

$$(3)\quad W_{wc1}(c,d,i) = A_{wc1}(c,d)\, W_s(c,i)$$

Note that since *d*=4 cases have adjustment factors of zero, they also have adjusted weights of zero.

The next step in weighting was to adjust for the loss of completed questionnaires from beneficiaries known to be eligible. For this adjustment, the weighting class *c* from the previous step was again partitioned into groups according to the beneficiary's response status code *d*. Within weighting class *c*, the weights of the *d*=2 nonresponding eligibles were redistributed to the responding eligibles *d*=1, using an adjustment factor $A_{wc2}(c,d)$ that was defined to be zero for *d*=2,4. For Group 1 (*d*=1), the questionnaire-completion adjustment or $A_{wc2}(c,1)$ factor for class *c* was computed as:

(4)

$$A_{wc2}(c,1) = \frac{\sum_{i \in S(c)} I_1(i) W_{wc1}(c,i) + \sum_{i \in S(c)} I_2(i) W_{wc1}(c,i)}{\sum_{i \in S(c)} I_1(i) W_{wc1}(c,i)}$$

By definition, all *d*=3 ineligible beneficiaries "respond," so the *d*=3 adjustment factor is 1, or $A_{wc2}(c,3)=1$. The questionnaire-completion adjusted weight was calculated as the product of

the questionnaire-completion adjustment $A_{wc2}(c,d)$ and the previous eligibility-status adjusted weight $W_{wc1}(c,d,i)$, or:

(5) $$W_{wc2}(c,d,i) = A_2(c,d)\, W_{wc1}(c,d,i)$$

As a result of this step, all nonrespondents (d=2,4) had questionnaire-completion adjusted weights of zero, while the weight for ineligible cases (d=3) remained unchanged, or $W_{wc2}(c,3,i)=W_{wc1}(c,3,i)$.

4. **Poststratification**

Poststratification adjustments forced the adjusted weight totals to the DEERS population totals for the specified population groups that formed the *poststrata*. The nonresponse-adjusted weight counts for a particular domain may deviate from the corresponding DEERS population counts, mainly due to the discrepancy of the beneficiary's status about certain characteristics between the time of sample selection and the time of data collection. We used DEERS data as of March 11, 1999 as poststratification values for certain variables. Catchment areas were constructed from combinations of sampling geographic areas as key domains for analysis. Military personnel's frequent moving would result in discrepancy between the nonresponse-weighted counts and updated DEERS counts. The poststratification variable was thus determined with catchment area.

To illustrate the use of poststratification, let g index poststrata, where g = 1, 2, ..., G. The poststratification adjustment factor for the g-th poststrata was defined as:

(6) $$A_{ps}(g) = \frac{N(g)}{\sum_{h,i \in S(g)} W_{wc2}(h,i)}$$

where:

$N(g)$ is the total number of beneficiaries in the DEERS frame associated with the g-th post-stratum, and

$S(g)$ is the set of sample records that are found in the g-th poststratum.

The poststratified adjusted weight for the i-th sample record from the h-th design stratum and the g-th poststratum was then calculated as:

(7) $$W_{ps}(g,h,i) = A_{ps}(g)\, W_{wc2}(h,i)$$

When summed over members of poststratum g, the poststratified weights now total $N(g)$. This poststratified weight is the final analysis weight used for all reporting and analysis.

5. Calculation of Jackknife Replicates

We constructed the 40 jackknife replicates as follows. First, the entire file of sampled beneficiaries was sorted according to stratification variables. Next, 40 mutually exclusive and exhaustive systematic sub-samples of the full sample was identified in the sorted file.[5] A jackknife replicate was then obtained by dropping one subsample from the full sample. By dropping each subsample in turn, the same number of different jackknife replicates as subsamples was defined. The entire weighting process as applied to the full sample was then applied separately to each of the jackknife replicates to produce a set of replicate weights for each record. A series of jackknife replicate weights (WRWT01-WRWT40)[6] was then attached to each beneficiary record in the final database. Given jackknife replicate weights, WesVarPC® (Brick et al. 1996) can be used to construct jackknife replication variance estimates.

[5]With 40 replicates, further statistical analyses such as confidence intervals and hypothesis tests can be based on approximate normal distribution. Inferences with finite replicate number *k* are based on the student *t* distribution with *k*-1 degrees of freedom. Thus, with 40 replicates, normal approximation can be used in constructing confidence intervals or hypothesis testing.

[6]These weights were named in the same manner in the 1997 HCSDB, but were incorrectly referred to as RPWJ in the "1997 HealthCare Survey of DoD Beneficiaries: Form A Technical Manual."

Chapter
4

Analysis

This chapter explains how the HCSDB variables were processed during the analysis phase of the project. It covers the procedure for calculating response rates, development of the dependent and independent variables for the analysis, the method for estimating the variance of the statistics, and the methodology for the performance improvement plan. Also, each of the four types of analytical reports is described briefly along with an outline of the steps involved to create charts for the reports.

A. RESPONSE RATES

In this section, we present the procedures for response rate calculation along with a brief analysis of response rates for domains of interest. Response rates for the 1998 HCSDB were calculated in the same way as they were calculated in 1997. The procedure is based on the guidelines established by the Council of American Survey Research Organization (CASRO 1982) in defining a response rate.

1. Definition of Response Rates

In calculating response rates and related measures, we considered two different rates: *unweighted* and *weighted*. The unweighted version of the response rate represents the counted proportion of respondents among all sampled units, and the weighted version indicates the estimated proportion of respondents among all population units. When sampling rates across all strata are equal, these two approaches give the same result. However, the 1998 HCSDB used different sampling rates across strata. So, it is useful to show both "unweighted" and "weighted" response rates. We calculated these two response rates in the same way. As presented in Chapter 3.C, all sampled beneficiaries were completely classified into these four main (six detailed) groups: Group 1 (G1-1 and G1-2), Group 2, Group 3, and Group 4 (G4-1 and G4-2):

- G1-1: eligible and complete questionnaire returned;
- G1-2: eligible and incomplete questionnaire returned;
- Group 2: eligible and questionnaire not returned;
- Group 3: ineligible
- G4-1: eligibility unknown and locatable; and
- G4-2: eligibility unknown and unlocatable.

The unweighted counts reflect the number of sampled cases (n_i for Group i, where i =1,2,3,4), and the weighted counts reflect the estimated population size[1] ($\hat{N}_i$ for Group i, where i =1,2,3,4) for the four main response categories.

These weighted and unweighted counts were also calculated for the subgroups G1-1, G1-2, G4-1, and G4-2, where we denote the unweighted counts by $n_{1,1}$, $n_{1,2}$, $n_{4,1}$, and $n_{4,2}$, and the weighted counts by $\hat{N}_{1,1}, \hat{N}_{1,2}, \hat{N}_{4,1}, \text{and } \hat{N}_{4,2}$. With these values, we calculated response rates as follows. Each sampled beneficiary was classified as eligible (member of Group 1 or 2), ineligible (member of Group 3), or of unknown eligibility (member of Group 4). Then, we calculated the unweighted *eligibility determination rate EDR* as:

(1) $$EDR = \frac{n_1 + n_2 + n_3}{n}$$

where n is the total sample size or $n = n_1 + n_2 + n_3 + n_4$. Similarly, we calculated the weighted eligibility determination rate EDR_w as:

(2) $$EDR_w = \frac{\hat{N}_1 + \hat{N}_2 + \hat{N}_3}{\hat{N}}$$

where $\hat{N}$ is the estimated total population size or $\hat{N} = \hat{N}_1 + \hat{N}_2 + \hat{N}_3 + \hat{N}_4$. *EDR* measures the proportion of sampled beneficiaries whose eligibility status was determined, while EDR_w measures the equivalent population proportion for DEERS.

Given eligibility determination rates, we calculated the *questionnaire return rate* or *QRR* (unweighted and weighted) as follows:

(3) $$QRR = \frac{n_1}{n_1 + n_2} \qquad \text{and} \qquad QRR_w = \frac{\hat{N}_1}{\hat{N}_1 + \hat{N}_2}.$$

For the purpose of calculating *QRR*, the sampled beneficiary need only have answered one item on the questionnaire to be classified as having "returned the questionnaire."

The *interim response rate* is defined as the product of the eligibility determination rate, or *EDR,* in Equation (1) and the questionnaire return rate, *QRR,* in Equation (3). The weighted interim response rate (IRR_w) as well as the unweighted interim response rate (IRR) were calculated as:

(4) $$IRR = EDR \times QRR \qquad \text{and} \qquad IRR_w = EDR_w \times QRR_w.$$

The interim response rate ignores the fact that some Group 1 returned questionnaires did not contain enough information to be included in the analysis. Using of Group 1 as the definition of "respondent" would result in an underestimation of the true extent of nonresponse and interject many missing values into item-specific analyses. For this reason, we applied a different definition of "respondent" to calculate final response rates as in the 1997 analysis. (See Section III.C for the definition of a completed questionnaire.)

[1]The weighted sum of sampled units can be regarded as an estimated population size. The base weight (BWT98) was used in calculating weighted counts, where BWT98 is the inverse of selection probability.

We applied this definition to the Group 1 returned questionnaires, partitioning them into G1-1 and G1-2, where G1-1 comprised the returned questionnaires with enough items answered to be considered "complete." The counts $n_{1,1}$, $\hat{N}_{1,1}$, $n_{1,2}$, and $\hat{N}_{1,2}$ denote the unweighted and weighted sample sizes corresponding to G1-1 and G1-2, respectively. Using this notation, we defined the unweighted and weighted questionnaire completion rates (*QCR* and QCR_w) as follows:

(5) $$QCR = \frac{n_{1,1}}{n_1} \qquad \text{and} \qquad QCR_w = \frac{\hat{N}_{1,1}}{\hat{N}_1}.$$

The final response rate for the 1998 HCSDB was obtained as the product of the eligibility determination rate, the questionnaire return rate, and the questionnaire completion rate, or:

(6) $$FRR = EDR \times QRR \times QCR \qquad \text{and} \qquad FRR_w = EDR_w \times QRR_w \times QCR_w.$$

The final response rates (*FRR* and FRR_w) consider only the G1-1 cases as respondents (i.e., those who answered enough questions to have returned what was considered a completed questionnaire).

We also calculated two measures used in the previous surveys: the location rate and the completion rate. To calculate the location rate, we first estimated the number of Group 4 "located" beneficiaries who were expected to be eligible for the survey:

(7) $$l = \left(\frac{n_1 + n_2}{n_1 + n_2 + n_3} \right) n_{4,1} \qquad \text{and} \qquad l_w = \left(\frac{\hat{N}_1 + \hat{N}_2}{\hat{N}_1 + \hat{N}_2 + \hat{N}_3} \right) \hat{N}_{4,1}$$

where *l* and l_w are unweighted and weighted estimates of the number of "located" beneficiaries among Group 4. Then, the unweighted and weighted "location rates" are defined by:

(8) $$LR = \frac{n_1 + n_2 + l}{n_1 + n_2 + n_4 \left(\frac{n_1 + n_2}{n_1 + n_2 + n_3} \right)} \qquad \text{and} \qquad LR_w = \frac{\hat{N}_1 + \hat{N}_2 + l_w}{\hat{N}_1 + \hat{N}_2 + \hat{N}_4 \left(\frac{\hat{N}_1 + \hat{N}_2}{\hat{N}_1 + \hat{N}_2 + \hat{N}_3} \right)}.$$

And the corresponding unweighted and weighted "completion rates" are defined by:

(9)

$$CR = \frac{n_{1,1}}{n_1 + n_2 + l} \qquad \text{and} \qquad CR_w = \frac{\hat{N}_{1,1}}{\hat{N}_1 + \hat{N}_2 + l_w}.$$

The final response rates in Equation (6) can also be obtained by multiplying the location rate in Equation (8) by the completion rate in Equation (9). In the same way, the interim response rate in (4) can be partitioned into the interim location rate and the interim completion rate. While the interim location rate remains the same as the final location rate, the interim completion rate had to be modified as follows:

(10)

$$ICR = \frac{n_1}{n_1 + n_2 + l} \qquad \text{and} \qquad ICR_w = \frac{\hat{N}_1}{\hat{N}_1 + \hat{N}_2 + l_w}.$$

In the definitions in Equations (2) through (10), the subscript "*w*" indicates that all calculations involve weighted counts. The method that we used to calculate response rates is consistent with the CASRO guidelines.

2. Reporting

We examined response rates to identify patterns across different domains or characteristics. While analysts prefer weighted rates that reflect the estimated proportion of respondents among all population beneficiaries, operational staff are often interested in getting unweighted measures. All tables include unweighted and weighted values under columns headed "Unweighted" and "Weighted", respectively. In the following, we focus on discussing unweighted response rates for domains of interest.

Table 4.1 includes response rates for the 1998 HCSDB Form A survey as a whole, by beneficiary groups, and by enrollment status.

- Overall: The overall unweighted response rate for the 1998 HCSDB was about 35 percent (which is found in Table 4.1 in the row of "Overall" under the column of "FRR" in "Unweighted"). This rate is substantially lower than the 51 percent rate achieved in the 1997 survey.

- Beneficiary group: While all response rates according to beneficiary groups are consistently lower than those from the 1997 survey, response patterns across beneficiary groups are similar in that response rates are higher for older retirees and family members of retirees (beneficiary group 4) than for the other beneficiary groups. In particular, response rates less than 35 percent are obtained for active duty persons and their family members (beneficiary groups 1 and 2). A possible explanation for such low response rates for active duty members and their families is that they tend to move around quite often.

- Enrollment status: Response rate for enrollees with a military PCM is 31 percent which is less than those for enrollees with a civilian PCM (48 percent) and nonenrollees (47 percent).

Table 4.1

Response Rates Overall, by Enrollment Group, and by Beneficiary Group

	UNWEIGHTED			WEIGHTED		
	FLR (%)	IRR (%)	FRR (%)	FLR (%)	IRR (%)	FRR (%)
Overall	96.2	35.1	35.0	96.9	45.7	45.5
Enrollment Group						
Military PCM	95.8	31.0	31.0	95.6	33.0	32.9
Civilian PCM	98.9	48.4	48.3	99.1	52.2	52.1
Not enrolled	96.8	47.2	47.0	97.5	53.6	53.3
Beneficiary Group						
Active duty, under 65	94.9	26.9	26.8	94.0	26.3	26.2
Family members of active duty, under 65	97.5	33.4	33.3	97.5	32.6	32.5
Retirees, survivors, and family members, under 65	98.3	55.0	54.9	98.2	54.3	54.1
Retirees, survivors, and family members, 65 or over	97.8	62.6	62.1	97.3	61.1	60.7

For domains of special interest, Appendix J contains tables showing six key response rate measures: the final location rate (FLR), the interim response rate (IRR), the final response rate (FRR), and weighted versions of these three rates. We summarize results about response rates for selected domains as follows:

- ***Regions:*** Response rates across regions range from 28 percent for Western Pacific to 42 percent for Region 11 (Table J.1)

- ***The geographic areas:*** Response rates across geographic areas range from 20 percent for 0637 to 59 percent for 9912. Some overseas areas show lower response rates relative to areas within the United States (Table J.2).

- ***Enrollment Sampling Group by beneficiary group:*** Response rates range from 25 percent for non-enrolled family members of active duty to 62 percent for retirees, survivors, and family members, 65 or over, who are not enrolled (Table J.3).

- ***Beneficiary group by pay grade/military personnel category (MPC) of sponsor (enlisted, warrant officer, officer):*** It is apparent that there is substantial discrepancy of response rates among PG/MPC groups; enlisted with lower rates, warrant officer and officer with higher rates. In particular, the lowest rate is 23 percent for enlisted active duty and the largest is 74 percent for officer retired over 65 (Table J.4).

- ***Beneficiary group by service affiliation (Army, Air Force, Navy)*** There is little variation among service affiliation; the smallest response rate comes from Marine Corps active duty with 19 percent and the largest from Air Force retirees over 65 with 65 percent (Table J.5).

- ***Beneficiary group by Race/ethnicity (white, black, Hispanic, American Indian/Alaskan, Asian Pacific Islander, other)*** White beneficiaries showed higher response rates than other race/ethnicity groups across all beneficiary groups. The smallest response rate comes from Black active duty with 21 percent and the largest from unknown race retirees over 65 with 66 percent (Tables J.6).

- ***Sex by beneficiary group:*** Note that males show substantially higher response rates than females among family of retirees; 56 percent to 54 percent for family of retired under 65 and 68 percent to 56 percent for family of retired over 65. The highest response rate comes from Male retirees over 65 with 68 percent (Table J.7).

B. VARIANCE ESTIMATION

In calculating the standard errors (the squared roots of variances) of estimates for the 1998 HCSDB analyses, we used SUDAAN™ (Shah et al. 1996) with its Taylor series linearization method. For analysts who prefer a replication method, we calculated 40 replicate weights for jackknife replication for the public use file. Here we describe variance estimation methods for the Taylor series linearization method and the jackknife replication method.

1. Taylor Series Linearization

It has been customary for analysts to pursue *unbiased* variance estimators in survey estimation[2]. For most sample designs (including the 1998 HCSDB), design-based unbiased variance estimators for linear estimators of totals and means are available with explicit formulas (Cochran 1977). However, estimators for nonlinear parameters such as ratios do not have exact expressions for unbiased variance estimators. The Taylor series linearization method approximates the variance of a nonlinear estimator with the variances of the linear terms from the Taylor series expansion for the estimator (Woodruff 1971).

Let $\hat{Y}$ denote an estimator of a population total. Then, a customary variance estimator of $\hat{Y}$ is the sum of the stratum variance estimators, or:

$$v(\hat{Y}) = \sum_{h=1}^{H} v_h \qquad (1)$$

where $v_h = n_h^{-1}(n_h - 1)^{-1}\sum_{i=1}^{n_h}(n_h w_{hi} y_{hi} - \hat{Y}_h)^2$ is a stratum variance estimator, n_h is the number of sampled respondents from stratum h = *1, 2, ..., H*, w_{hi} is the final analysis weight obtained from the weighting adjustment, y_{hi} is the observed value for the *i*-th respondent in the *h*-th stratum, $\hat{Y}_h$ is an estimator for the *h*-th stratum total, and stratification has been based upon a combination of enrollment status groups and beneficiary groups and geographic areas. Using Taylor series linearization, analysts can expand the variance estimation to nonlinear estimators. For example, consider estimation of a ratio of two different totals, $R = X^{-1}Y$. Then, the Taylor series linearization method generates a variance estimator as follows:

$$v(\hat{R}) = \hat{X}^{-2} v(\hat{Y}) - 2\hat{Y}\hat{X}^{-3} cov(\hat{Y}, \hat{X}) + \hat{Y}^2 \hat{X}^{-4} v(\hat{X}) \qquad (2)$$

where $v(\hat{Y})$ and $v(\hat{X})$ are obtained from (1), and the covariance estimator is also obtained from the same formula except using the cross-product instead of the square.

For the variance estimates we published in our reports, we used SUDAAN, the most widely used of publicly available software packages based upon the Taylor series linearization method. To use SUDAAN, users need to both specify the sampling design as stratified sampling design without replacement and include variables recording stratum, population counts in each stratum and the final weight WRWT98. A sample SUDAAN program appears in Appendix L.

[2]An estimator is said to be unbiased if the average of estimated values from all possible samples is the true value to be estimated.

2. Jackknife Replication

Like other resampling methods, jackknife replication uses the same variance formula regardless of the complexity of the estimators. Let $\hat{Z}$ denote an estimator that can be a linear or nonlinear function of totals. Further, let $\hat{Z}_j$ denote the corresponding estimator for the *j*-th jackknife replicate using the same formula as the full sample estimator with the replicate weights described in Chapter 3.F. The variance of $\hat{Z}$ is then estimated from the variability among these replicated estimators:

(3) $$v(\hat{Z}) = \frac{K-1}{K} \sum_{j=1}^{K} (\hat{Z}_j - \hat{Z})^2$$

where the summation extends over the $K = 40$ jackknife replicates. For the jackknife replication method, 40 replicate weights were calculated and made available on the final analysis data file.

With the replicate weights provided, users can produce jackknife standard errors using in-house or custom-written software, or publicly available statistical software. For instance, WesVarPC[2] (Brick et al. 1996) Version 2.12 can be used to produce jackknife variance estimates and is available as freeware on the World Wide Web (http://www.westat.com/wesvarpc/index.html). Details for jackknife replication and other variance estimation methods appear in Wolter (1985). See the "1998 HealthCare survey of DoD Beneficiaries: Form A Codebook and User's Guide" for instructions for using WesVarPC with jackknife replicate weights.

C. SIGNIFICANCE TESTS

In certain charts in the National Executive Summary Report (NESR) and the regional reports, statistical testing is done to show which columns of the chart (values of the independent variable) are statistically different from all CONUS regions as a whole. Positional arrows show if a region is statistically better than the CONUS regions (an arrow pointing up) or statistically worse than the CONUS regions (an arrow pointing down); if there is no arrow, there is no statistical difference.

The null hypothesis for this significant test is that the mean for the column is essentially equal with the CONUS mean, and the alternative is that the mean for the column is different from the CONUS mean. That is, we are testing:

$$H_0: m_1 = m_2 \quad \text{vs.} \quad H_a: m_1 \neq m_2$$

For instance, μ_1 might represent the characteristic of interest for the active duty group while μ_2 might represent the same characteristic for all CONUS regions.

With large sample sizes, the estimator $\overline{y_1} - \overline{y_2}$ is approximately distributed as a normal distribution with mean zero and variance $s^2_{\overline{y_1} - \overline{y_2}}$ under the null hypothesis. In testing the hypothesis, a test Statistic T is thus calculated as:

$$T = \frac{\overline{y_1} - \overline{y_2}}{\hat{s}_{\overline{y_1} - \overline{y_2}}}.$$

With $\alpha = 0.05$, the null hypothesis should be rejected if $|T| > 1.96$. The denominator of T, the standard error of $\overline{y_1} - \overline{y_2}$, can be calculated as the square root of the variance estimator $s^2_{\overline{y_1}-\overline{y_2}}$:

$$\hat{s}^2_{\overline{y_1}-\overline{y_2}} = \mathrm{var}(\overline{y_1}) + \mathrm{var}(\overline{y_2}) - 2\,\mathrm{cov}(\overline{y_1}, \overline{y_2}).$$

If $\overline{y_1}$ and $\overline{y_2}$ are independent, then the covariance term equals zero and thus the variance estimator can be easily obtained as the sum of two individual variance estimators. However, there are some cases in which the condition of independence does not hold. For example, Active Duty MTF group is not independent with the CONUS regions because these two domains share Active duty group within the CONUS regions. So the covariance term should be incorporated in calculating the variance estimator of the estimator of the difference. With suitable algebra and program modification, these covariance terms were calculated for all such cases. All detailed programs are included in Appendix K-12.

D. DEMOGRAPHIC ADJUSTMENTS

Regional estimates may be contaminated with demographic characteristics such as age or health status. To account for regional effects by controlling the effects due to the age and health status of the beneficiaries within the region, the reported estimates are adjusted for certain charts in the NESR and regional reports. For this adjustment, we executed regression models to get adjusted regional estimates that are independent of demographic distributions across regions.

The model we used for this adjustment is:

$$Y = b_0 + b_1 R_1 + b_2 R_2 + ... + b_{14} R_{14} + b_{15} A_1 + b_{16} A_2 + ... + b_{21} A_7 + b_{22} P + b_{23} M,$$

where Y is a dependent variable, β_i's are parameters to be estimated, R_i 's are regional dummy variables (R_i = 1 if the beneficiary is in region i, and 0 otherwise), A_i 's are age dummy variables (A_i = 1 if the beneficiary is in age group i, and 0 otherwise; A_1 = age 18-24, A_2 = age 24-34, A_3 = age 35-44, A_4 = age 45-54, A_5 = age 55-64, A_6 = age 65-74, and A_7 = age 75 and older), P is the physical composite score from the SF-12, and M is the mental composite score from the SF-12.

Then, the adjusted mean of the dependent variable Y for region i can be obtained as:

$$\overline{y_{AD}} = \hat{b}_0 + \hat{b}_i + \hat{b}_{15}\hat{A}_1 + \hat{b}_{16}\hat{A}_2 + ... + \hat{b}_{21}\hat{A}_7 + \hat{b}_{22}\hat{P} + \hat{b}_{23}\hat{M}$$

where $\hat{b}_i$'s are estimated model parameters, $\hat{A}_i$'s are weighted proportions of age group i among the total U.S. population, and $\hat{P}$ and $\hat{M}$ are weighted MHS means of the variables P and M, respectively.

The SAS programs for the demographic adjustments are found in Appendix k-13.

E. DEPENDENT AND INDEPENDENT VARIABLES

Dependent, or outcome, variables represent the research questions the survey is designed to answer. For example, beneficiary satisfaction and access are dependent variables in this analysis. The research questions are listed in Chapter I. Generally, dependent variables form the rows of the tables and the vertical axis of the charts.

Independent, or explanatory, variables do not directly represent research questions, but they may help to explain the differences in one or more of the outcome variables. They may also be correlated with one or more dependent variables. For example, a beneficiary's satisfaction with health care may be correlated with their age and/or TRICARE Prime enrollment status. Each table is designed to help determine whether a particular dependent variable is correlated with a particular independent variable. Independent variables form the columns of the tables and the horizontal axis of the charts.

In analyzing the relationship between dependent and independent variables, MPR produced charts and tables that are found in the reports described below. Beginning with the HCSDB in a SAS format, MPR programmers developed SAS procedures such as PROC FREQ and PROC MEANS and SAS-callable SUDAAN procedures such as PROC DESCRIPT and PROC CROSSTAB to generate the relevant statistics (e.g., per cents, means, and standard errors). These statistical values were moved directly from SAS programs to Excel tables using a dynamic data exchange to populate the cells of the tables. Graphical displays were generated from table values wherever feasible. Sample programs to populate these graphical displays are found in Appendix K-14: a sample driver program to populate all charts for one chapter, a sample program to generate means, and a sample program generating percents.

F. REPORTS

This section lists the types of reports produced and states the main purpose of each report. There are four types of reports: National Executive Summary Report, Regional Reports, Catchment Reports, and Medicare Subvention Demonstration Report. The last part of this section explains the procedure for report production.

1. National Executive Summary Report

The purpose of the National Executive Summary Report is to provide OASD(HA), in general, and TMA, in particular, with a comprehensive national summary of the HCSDB findings. This report is organized in the same way as the regional reports. Many bar charts appearing in the regional reports are duplicated, but in lieu of region-specific findings, the National Executive Summary Report bar charts reflect survey data from *all* respondents in the domestic MHS. A nationwide Performance Improvement Plan (PIP) as well as several bar charts comparing the domestic MHS with the overseas MHS are also included.

In Appendix E, there is a complete list of the graphs in the National Executive Summary Report along with the relevant independent and dependent variables and variables defining the population.

2. Regional Reports

There are individual regional reports for Regions 1-6, 9-12, Alaska, Europe, Asia, and Latin America; findings for Regions 7 and 8 are merged into one report. The regional reports are designed to provide Lead Agents with basic reference material on the following aspects of TRICARE health care:

- Region-specific profiles of TRICARE beneficiaries' health status, health care use, and access in 1998 including comparisons with results for other regions and CONUS MHS overall, current TRICARE access and preventive care standards, and trend analyses (where feasible).

- Beneficiaries' knowledge of and satisfaction with TRICARE in general, their health plan in particular, and how overall satisfaction with military care compares with that of civilian care.

Most of the regional analyses focus on the following subgroups of TRICARE beneficiaries: Prime enrollees under age 65 (by active duty status and type of primary care manager or facility type), non-Prime beneficiaries under age 65, and non-Prime beneficiaries age 65 and over.

In Appendix F, there is a complete list of the graphs in the regional reports along with the relevant independent and dependent variables and variables defining the population.

3. Catchment Reports

The Catchment Reports provide Lead Agents and MTF commanders with key survey results for each catchment area in their region, along with an executive summary of the survey findings and a description of the purpose and methodology of the survey. There are 15 catchment reports in total, one per region (including Alaska, Asia, and Latin America), except for one combined report for Regions 7 and 8.

Five basic topics are covered in each catchment report:

- Satisfaction with TRICARE

- Knowledge of and Satisfaction with Health Plan

- Access to Health Care

- Health Status and Health Care Use

- Use of Preventive Services

The catchment analyses are presented in graphic or tabular format and typically focus on important population groups in each area, such as:

- Prime enrollees, whose health care is the MTF's financial responsibility

- Non-active duty beneficiaries who live near the MTF and thus have the option to enroll in or disenroll from the plan

Where relevant, comparative data for CONUS MHS and civilian benchmarks are also presented. The catchment population is divided by beneficiary category, enrollment status, and type of PCM. In addition, each report contains, for each catchment area, a Performance Improvement Plan (PIP) that summarizes the responses to numerous satisfaction questions in the HCSDB in a graphic format so that the patterns underlying these responses are more easily seen. These patterns help to identify key aspects of services or care that most influence beneficiary satisfaction in the catchment area.

In Appendix G, there is a complete list of the graphs and tables in the Catchment Reports along with the relevant independent and dependent variables and variables defining the population.

4. Medicare Subvention Demonstration Report

The Medicare Subvention Demonstration was sponsored by TMA and HCFA to test a new system of financing health care for military retirees and their dependents age 65 and over. Under the demonstration, beneficiaries may enroll in Senior Prime, and all or part of their care will be financed by the Medicare trust fund. The demonstration is under way in 10 demonstration MTFs in seven geographic areas across the contiguous 48 states.

The Subvention Report compares beneficiaries over 65 in each demonstration site to those under 65. This comparison provides MTF commanders at the demonstration sites with characteristics of their newly eligible population in relation to the population they have served for many years. In addition, the report compares characteristics of beneficiaries over age 65 in the demonstration sites to the 65+ beneficiaries in the remainder of the domestic MHS.

The characteristics presented in the report include:

- Demographic characteristics
- Health status
- Health care utilization
- Health plan enrollment
- Knowledge and satisfaction with health care

The report does not compare demonstration enrollees to non-enrollees because the initial enrollment in the demonstration had not been completed when the survey was fielded.

In Appendix H, there is a complete list of the graphs in the Medicare Subvention Demonstration Report along with the relevant independent and dependent variables and variables defining the population.

5. Procedures for Report Production

There are multiple steps required to design tables and charts and then to populate them with data from the HCSDB. These steps are described below.

a. Creating the table shells, chart shells, and page templates

The first step in creating the charts/tables for the reports is creating a chart/table shell in Excel. Charts in Excel are created using the Chart Wizard:

- First select the type of chart to show. For most charts in the reports, these are clustered column charts.
- Next select the data range, which is the group of cells that contain the data to go into the charts. These data are grouped into series, and the series labels are used in the legend, while group labels are used as x-axis labels.
- Select Chart Options. This is where the axis titles are entered and where formatting of the axes, gridlines, legend, and data labels occurs.
- Finally, place the chart on the correct worksheet.

Once all of the charts for the reports are created, they should be formatted with the same fonts and colors and set up to be the same size when printed. The size of the charts is established by using Page Setup from the File menu and changing the margins as follows:

- Top margin is 0.975
- Right margin is 1.0
- Bottom margin is 4.8
- Left margin is 0.9.

In addition, each chart is set to print landscape.

To create tables in Excel, start with a blank worksheet and type the title across the top row. The headings for each column in the table go into the second row, and row labels go into the first column of the worksheet. Once all of the labels are in place, format the table in this manner:

- Align the labels
- Add borders and shading
- Cells that contain the data should be centered and formatted to show one decimal place
- Cells that contain the standard errors should be formatted to appear in parentheses

Once all of the charts and tables are created in Excel, three macros written in Visual Basic for Applications (VBA) within Excel will automate tasks required for each region (see Appendix M). One macro requires the user to input the region number or name, then changes all region references in chart labels, table titles, table labels, and any other references within the spreadsheet to the new region number or name. Two other macros copy the worksheets containing tables to new worksheets, in order to make printing of the tables easier and quicker.

b. Creating Page Templates

The next step in producing the report is to develop a template page in Word for each chart. In 1998 these Word templates were created using the same format as the 1997 report. The top of the page of each template shows the chart title and associated questions. In the middle of each page is a space for the chart. The bottom left side of the page shows the population, sample size, and descriptions of the chart axes, and the bottom right side of the page includes the description of what the chart shows and the findings section.

c. Populating the Tables

MPR wrote the programs to populate the charts in SAS, using SAS-callable SUDAAN. There are two different types of programs used to create the charts. One type of program creates the charts that show the average ratings of a variable, and the second type of program is used to create the charts that show percentages. The programs for average ratings use the SAS procedure PROC DESCRIPT, and the VAR, TABLES, SUBGROUP, SUBPOPN, and OUTPUT statements are changed for each chart. The programs that calculate percentages use the PROC CROSSTAB procedure, and the TABLES, SUBGROUP, SUBPOPN, and OUTPUT statements in that

procedure are changed for each chart. Samples of these programs appear in Appendix K-14. There is a separate program for each chart, and for each chapter of the report there is an overall program that runs all of the individual chart programs in that chapter. The chapter program contains macro variables for region, name of the data file, location of program files, and name of the Excel file containing the charts. This facilitates making changes when the programs are run for each region, as all changes are made just once in the overall chapter program. A sample chapter program also appears in Appendix K-14.

Each chart program also contains a DDE link to run the SAS output for each chart into the Excel file, onto the worksheet that contains the standard error table associated with the chart. The data is set up to run into cells on the worksheet that are below the table that is already there. The DDE link contains row and column references for where to start running the data into Excel and where to end. The data series for each chart and the standard error tables then reference these cells. A sample cell reference looks like:

- ='Table1'!A1

This example takes the value from the first column (A) and first row (1) of the worksheet labeled Table1.

There are separate programs that calculate significance (see Appendix K-12) so that arrows can be added to the charts to indicate whether a finding is significantly higher or lower than the CONUS MHS average.[1] Output of these programs is a value of 0, 1, or 2 for each bar in the chart;

- 0 denotes no significant difference
- 1 denotes a value significantly higher than CONUS MHS
- 2 denotes a value significantly lower then CONUS MHS

These values are moved into the appropriate Excel worksheet using a DDE link within the significance test program. A macro written in VBA adds the appropriate arrows to the charts by identifying the value for each bar in the chart and drawing the appropriate arrow to the left of the data label above the bar (see Appendix M).

d. Finalizing Pages

Finally, each completed chart is moved from Excel into its corresponding Word template. To ensure uniformity of the size of each chart within the Word template, all charts are formatted in Excel to be the same size when printed. This is done manually, and each step listed below must be done for each chart:

- The first step in moving the charts from Excel to Word is to hold down the Shift key while selecting the Edit menu on the Excel toolbar and then selecting the option to Copy Picture. This brings up a menu with options for copying both the size and appearance of the picture as it is shown on the screen or when printed. For both options, the charts are copied with the option of "as shown when printed".
- The Word template is then brought up on the screen, and the chart is pasted into the Word document by selecting either Ctrl-V or Paste on the Edit menu.

[1] In the case of Chart 4.4, each bar is compared to each corresponding CONUS MHS bar, not the overall CONUS MHS average.

- The chart can then be moved to the correct place in the template, and a border is placed around the chart by selecting the Format menu on the Word tool bar and clicking on Picture. When this brings up another menu, select the Colors and Lines tab, change the line color to black, and then click the OK button on the menu to draw a solid border around the chart.

G. PERFORMANCE IMPROVEMENT PLAN

The purpose of this Performance Improvement Plan is to summarize the large number of satisfaction questions in the HCSDB so that the underlying patterns are more easily seen. These patterns help to identify key aspects of services or care that most influence beneficiary satisfaction. Each point in the Performance Improvement Plan represents one of the detailed questions about satisfaction with military health care, questions 100a-s. For example, point H represents satisfaction with the length of time the beneficiary waits in the provider's office.

The distance of the point from the origin along the vertical axis, that is, the height of the point, represents the degree of importance placed on different aspects of health care by beneficiaries.

The distance of the point from the origin along the horizontal axis represents satisfaction values by showing the percentage of respondents who feel that their experience with this aspect of health care is excellent or very good.

Importance is the correlation of members' overall satisfaction with their rating of a health care service item. (A correlation is developed for each item.) For example, one might interpret the correlation as indicating how "important" office waiting time is in determining the respondent's overall satisfaction with military care. This interpretation views each specific aspect of health care, such as office waiting time, as a component of overall health care. Overall satisfaction with health care is a combination of the separate satisfactions with individual components. The farther the point is to the right, the more important that component is in determining overall satisfaction with military health care.

The intersection of a service's importance and satisfaction value defines a point on the grid. The middle values of importance and satisfaction determine the lines that divide the grid into four priority quadrants. Services to the right of the vertical line are of greater importance to the beneficiary than those to the left of the line and are noteworthy for their contribution to overall satisfaction. Beneficiaries are less satisfied with services below the horizontal line and more satisfied with those above the line.

The quadrants may be interpreted as follows:

- ***Top Priority Improvement Opportunities are in the top left quadrant.*** These are specific aspects of health care with which beneficiaries are relatively dissatisfied and, at the same time, are important in determining overall satisfaction. These are the areas that represent the greatest opportunities for increasing overall beneficiary satisfaction.

- ***Top Priority Areas to Maintain are in the top right quadrant.*** These are aspects of health care with which beneficiaries are relatively satisfied and that are important in determining overall satisfaction. These are current strengths of the region

- ***Secondary Priority Improvement Opportunities are in bottom left quadrant*** Low importance and low satisfaction characterize these aspects of health care. There may be a need for improvement, but these are lower priority items.

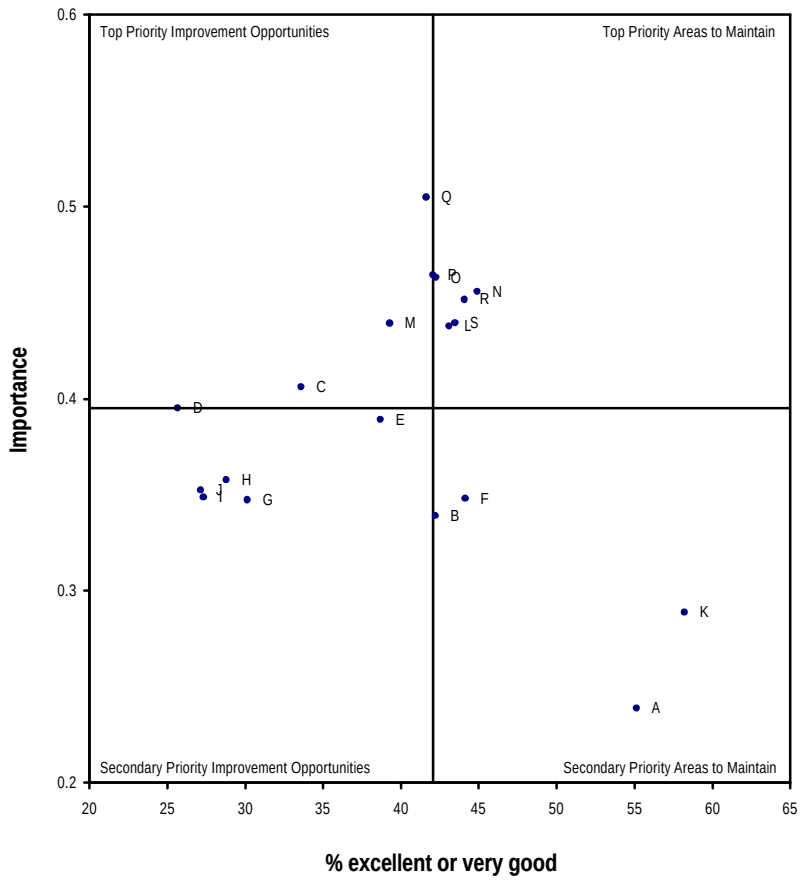
- ***Secondary Priority Areas to Maintain are in the bottom right quadrant.*** These aspects of health care are characterized by low importance and high satisfaction. These areas appear to be meeting beneficiaries' expectations.

A sample Performance Improvement Plan appears in Table 4.2.

TABLE 4.2

PERFORMANCE IMPROVEMENT PLAN

"Bold items in the key to the right of this PIP identify aspects of military health care in Region X that need remedial attention. This means that these aspects of care were important to overall beneficiary satisfaction but received relatively low satisfaction scores. The items fall into two categories: (1) access to system resources and appointments [items A –K], and (2) quality of care [item L – S].



A. Convenience of location
B. Convenience of hours
C. Access to health care
D. Access to specialist
E. Access to hospital
F. Access to medical care
G. Ease of making appointments
H. Length of time waiting at office
I. Length of time between making appointment for routine care and day of visit
J. Health care information and advice by phone
K. Services available for getting prescriptions filled
L. Thoroughness of exam
M. Ability to diagnose health care problems
N. Skill of health care providers
O. Thoroughness of treatment
P. Outcomes of your health care
Q. Quality
R. Provider's explanation of procedures
S. Provider's explanation of tests

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